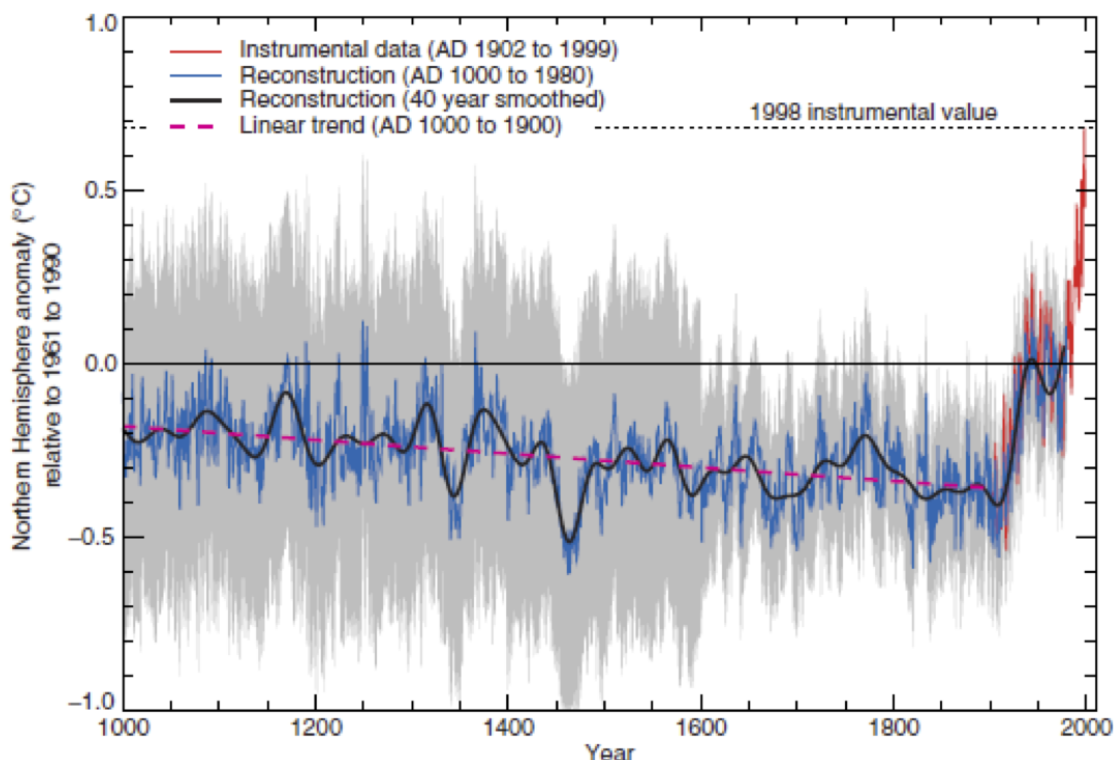


# Die falschen Klimathesen des Professors Mojib Latif

geschrieben von Dr. Hüttner | 20. November 2012

Wenn man schon nach einem Leugner des Klimawandels suchen sollte, dann findet man diesen bei den AGW-Vertretern. Für einige hundert Jahre hat Michael Mann mit seiner berühmt-berüchtigten gleich mehrfach manipulierten Hockeyschlägerkurve[1] ein nahezu konstantes Klima erfunden.



Von 1000 bis 1900 ändert sich die Temperaturanomalie um knappe  $0.2^{\circ}\text{C}$ . Hierzu mussten aber durch statistische Tricks die kleine Eiszeit und das mittelalterliche Temperaturoptimum abhanden kommen.

## These 1: Der Mensch ist unschuldig. Klimaschwankungen gab es immer schon.

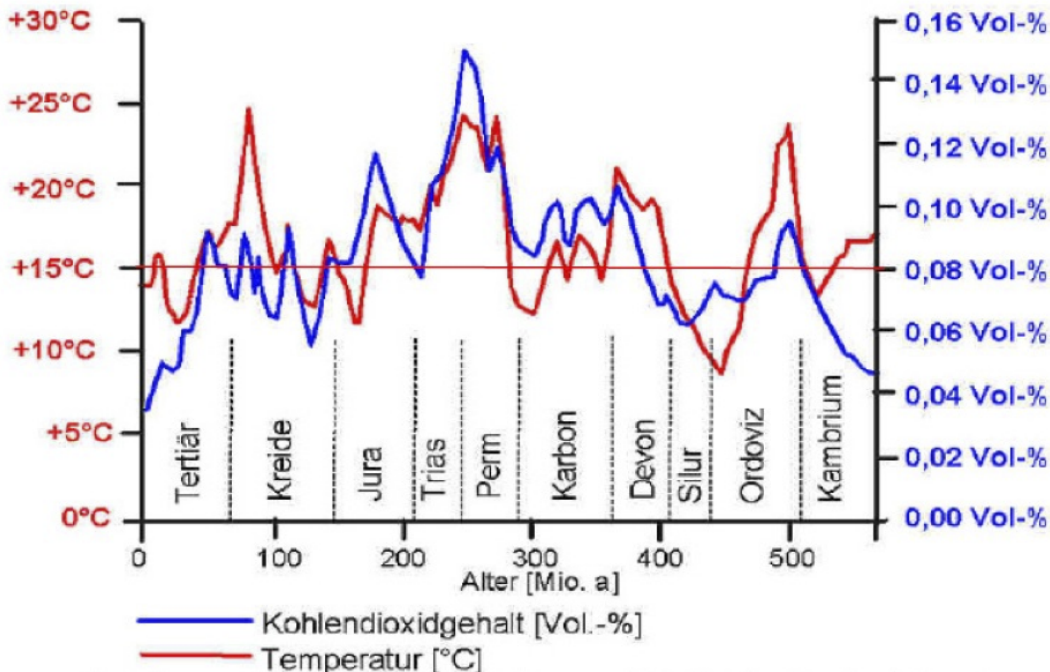
**Falsch.** Es gab zwar immer schon natürliche Klimaschwankungen. Aber wenn wir so weitermachen wie bisher, bekommen wir eine Klimaerwärmung, die es in der Geschichte der Menschheit noch nicht gegeben hat. Da es nicht eindeutig ist, was Prof. Latif (PL) meint, schauen wir uns sowohl die absolute Temperatur und die Temperaturanomalie an.

### 1. Absolute Temperatur

Der IPCC nimmt hierfür 288K oder  $15^{\circ}\text{C}$  an. Dieser Wert ist aus zwei

Gründen von geringer Aussage, da man mittels der Thermodynamik zeigen kann, dass es keinen Mittelwert geben kann und weil er (trotzdem) vom IPCC mittels des Stefan-Boltzmann-Gesetzes,  $S = \epsilon \sigma T^4$ , mit  $\epsilon = 1$ , als ob die Erde ein schwarzer Körper sei, berechnet wird.

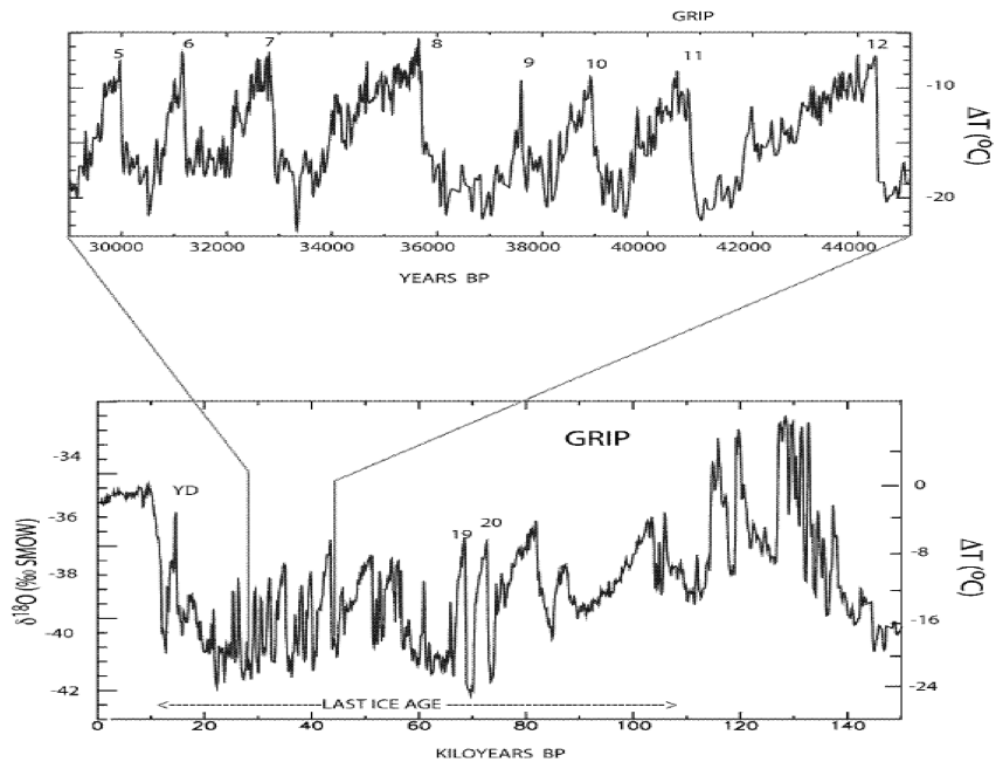
Um einen Vergleich zu ermöglichen, nehmen wir temporär trotzdem an, dass eine mittlere Temperatur gemessen werden kann. Die folgende Graphik zeigt die CO<sub>2</sub>-Konzentration und die Temperatur im Verlauf der Erdgeschichte.



Man erkennt drei wichtige Fakten. Erstens war es schon des Öfteren viel wärmer als heute und es gab durchaus Zeiten, wo die Temperatur stieg, aber die CO<sub>2</sub>-Konzentration abnahm. Und drittens, wir leben in einer Zeit der minimalen CO<sub>2</sub>-Konzentration und Konzentrationen die 3- bis 5mal so hoch waren wie derzeit führten zu keinem Klimakollaps. Die absolute Temperatur kann PL also nicht gemeint haben.

## 2. Der Temperaturanstieg

Im 20. Jahrhundert stieg die mittlere Temperatur um 0,7-0,8°C an. Dass es selbst daran beträchtliche Zweifel gibt wegen der permanenten Manipulationen der Messreihen, sei einmal übersehen (Details dazu im Bericht „Das Temperaturdilemma“). Die nächste Graphik zeigt die Dansgaard-Oeschger-Oszillationen. Eine detaillierte Inspektion offenbart Schwankungen von mehr als Grad 10°C innerhalb weniger Jahrzehnte. Also war der Anstieg mindestens zehnmals stärker als der so dramatisierte im letzten Jahrhundert.



Man könnte noch spitzfindig bemerken, dass von der Geschichte der Menschheit gesprochen wurde. Wenn es aber erstens dramatischere Änderungen ohne von den Menschen erzeugtes CO<sub>2</sub> gab, warum soll er für einen sehr moderaten Wandel in der Neuzeit „schuldig“ sein. Zweitens lebten und überlebten unsere Vorfahren während der extremen Dansgaard-Oeschger-Oszillationen. Oder zählen sie nicht mehr zur Menschheit?

## **These 2: Die Erwärmung wird nur von der Sonne bewirkt.**

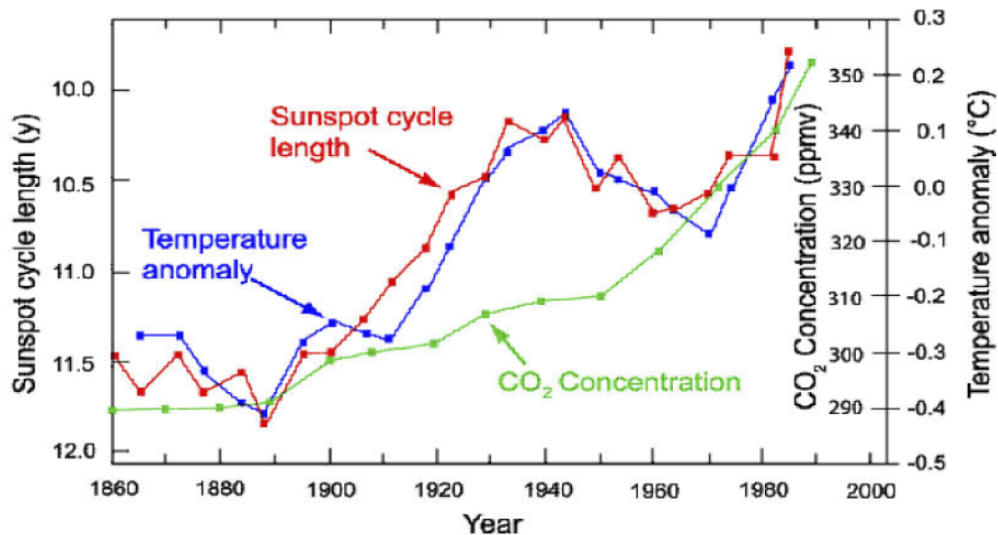
**Falsch.** Drei Viertel der Erwärmung ist vom Menschen gemacht, nur ein Viertel geht auf natürliche Ursachen zurück, insbesondere die Sonne. Aber der Sonneneinfluss passierte in der ersten Hälfte des 20. Jahrhunderts.

Die These suggeriert die Antwort, aber diesmal ist der Fragesteller in die eigene Falle getappt, denn die Antwort lautet ganz klar Ja. Die Sonne ist nun einmal die einzige uns zur Verfügung stehende Energiequelle, wenn man von dem vernachlässigbaren Beitrag der Erdwärme absieht.

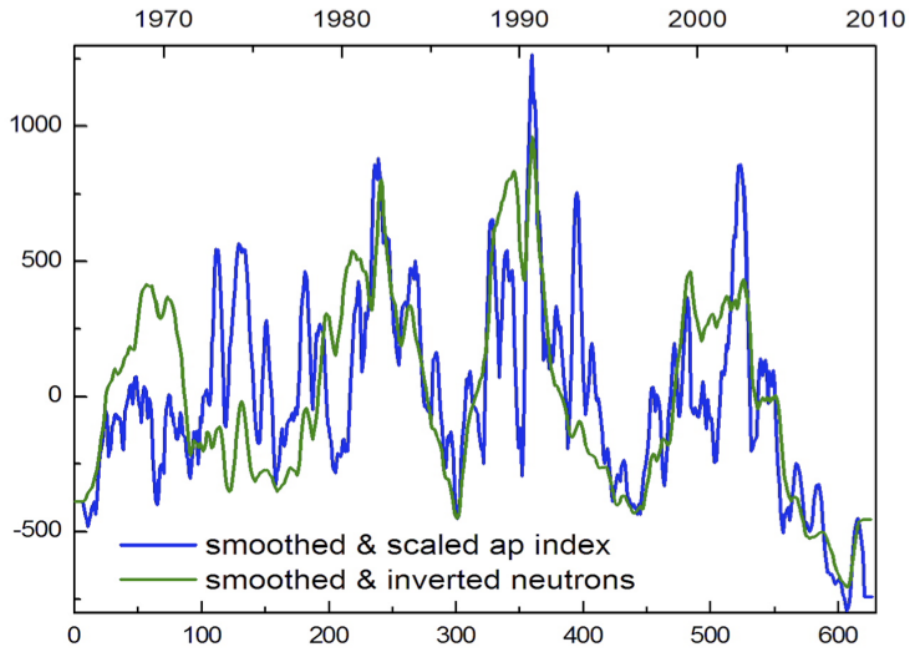
Die Verteilung der eingestrahnten und abgestrahlten Energie auf der Erde und die dadurch bewirkten lokalen Temperaturen hängen auch von anderen Größen ab.

Nehmen wir an, dass dies in der These gemeint sei.

Die Behauptung „drei Viertel der Erwärmung ist vom Menschen gemacht“ erscheint nach der Diskussion der ersten These schon etwas abstrus, denn wie konnten unsere zahlenmäßig geringen Vorfahren solch drastische Temperaturänderungen produzieren, da sie ja nicht einmal Autos hatten. Die nächste Graphik vergleicht die Temperaturanomalie mit der Länge des Sonnenzyklus und der Änderung der CO<sub>2</sub>-Konzentration.

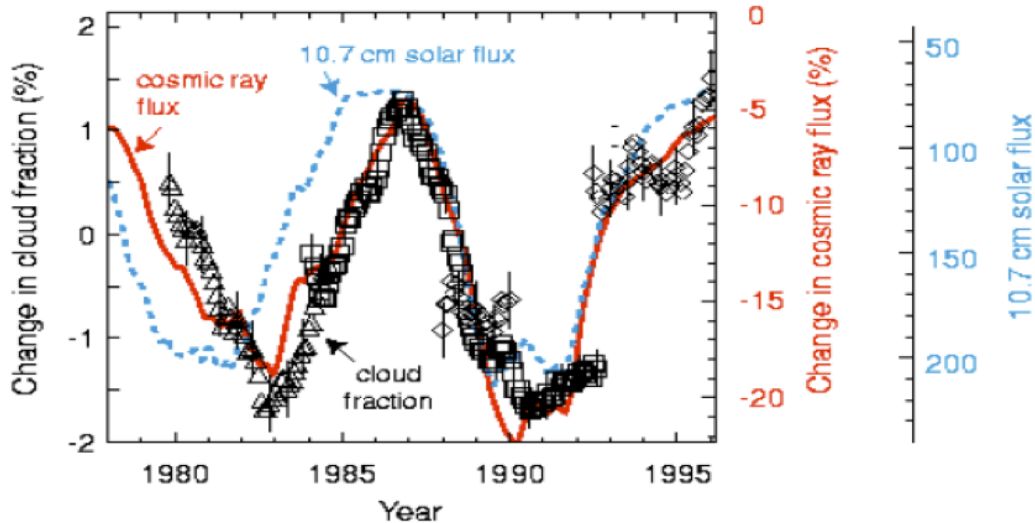


Wenn es nach PL eine Korrelation zwischen der Sonnenaktivität und der Temperaturanomalie vor 1950 gab, dann ist es anhand der Graphik schwer verständlich, warum dies danach nicht mehr gelten soll. Richtig würde PL liegen, wenn er die Korrelation zwischen der Temperaturanomalie und der CO<sub>2</sub>-Konzentration in Frage stellen würde, denn die ist erbärmlich. Der Standardeinwand lautet hier, dass die Schwankung der solaren Einstrahlung zu gering ist. Dies mag für den integralen Wert richtig sein, aber im UV-Bereich liegt die Variation z. B. im Bereich von 10%. Des Weiteren hat das Cloud-Experiment in CERN eindeutig gezeigt, dass eine Verstärkung der kosmischen Strahlung die Wolkenbildung fördert, wie Svensmark[2] zuerst postuliert hat. Die Intensität der in die Atmosphäre eintretenden kosmischen Strahlung ist aber von der magnetischen Aktivität der Sonne abhängig. Ein Maß für diese Aktivität ist der ap-Index und für die kosmische Strahlung sind dies die gemessene Anzahl der Neutronen auf der Oberfläche der Erde. Umso mehr Neutronen gemessen werden umso stärker ist die kosmische Strahlung und umso geringer das solare Magnetfeld. Dieser Zusammenhang wird durch die nächste Graphik, die die Variation des ap-Indexes mit der invertierten Änderung des Neutronenflusses vergleicht, eindrucksvoll belegt.



Die

folgende Graphik zeigt zweifelsfrei, dass es eine enge Korrelation zwischen der kosmischen Strahlung und der Wolkenbildung gibt. Mehr Wolken bedeuten geringere Einstrahlung und sinkende Temperaturen und vice versa.



Fazit: Die Behauptung, dass der Einfluss der Sonne nur für die erste Hälfte des Jahrhunderts verantwortlich ist, steht auf sehr tönernen Füßen.

Aber lassen wir doch PL selbst zu Worte kommen. Am 16.11.09 stand in der „Bild“:

*Jetzt macht der Klimawandel Pause. Ausgerechnet vor dem Klimagipfel der Vereinten Nationen in Kopenhagen, bei dem Forschung und Wirtschaft im Dezember über milliardenschwere Programme zum Schutz unserer Erde beraten wollen. Wie passt das zusammen?*

Meteorologe Mojib Latif vom Kieler Leibniz-Institut für Meereswissenschaften: „Derzeit hat die Erdwärmung Pause.“

## **WAS SIND DIE GRÜNDE?**

**Unklar! Der Klimawandel stellt die Wissenschaftler mal wieder vor ein Rätsel. Jedoch nennen sie im „Spiegel“ zwei mögliche Gründe.**

- **Die Sonne schwächelt. (Endete nicht der Einfluss der Sonne 1950?) Weltraum-Forschern der Nasa fiel die geringe Zahl der Sonnenflecken auf, ein Zeichen für geringe Strahlungsaktivität. Das gab es so ausgeprägt seit Hunderten Jahren nicht.**

- **Im Pazifik steigt am Äquator kaltes Tiefenwasser nach oben („Pazifische Dekaden-Oszillation“). Mojib Latif meint, dass die Erdatmosphäre dadurch abgekühlt werde.**

**Beides sind Phänomene, die nur einige Jahre andauern. Danach gehe**

der Klimawandel weiter, sagt Latif:  
„Tatsächlich sind Phasen der  
Stagnation oder gar Abkühlung  
normal.“

Richtig Herr Prof. Latif ist, dass  
sich das Klima immer änderte und  
ändern wird. Erklären müssten Sie  
uns aber, warum eine Stagnation und  
eine Abkühlung normal sind, aber  
eine Erwärmung ungewöhnlich und  
menschengemacht ist.

**These 3: CO2 hat  
keinen Anteil an  
der Erderwärmung,  
Wasserdampf ist**

**schuld.**

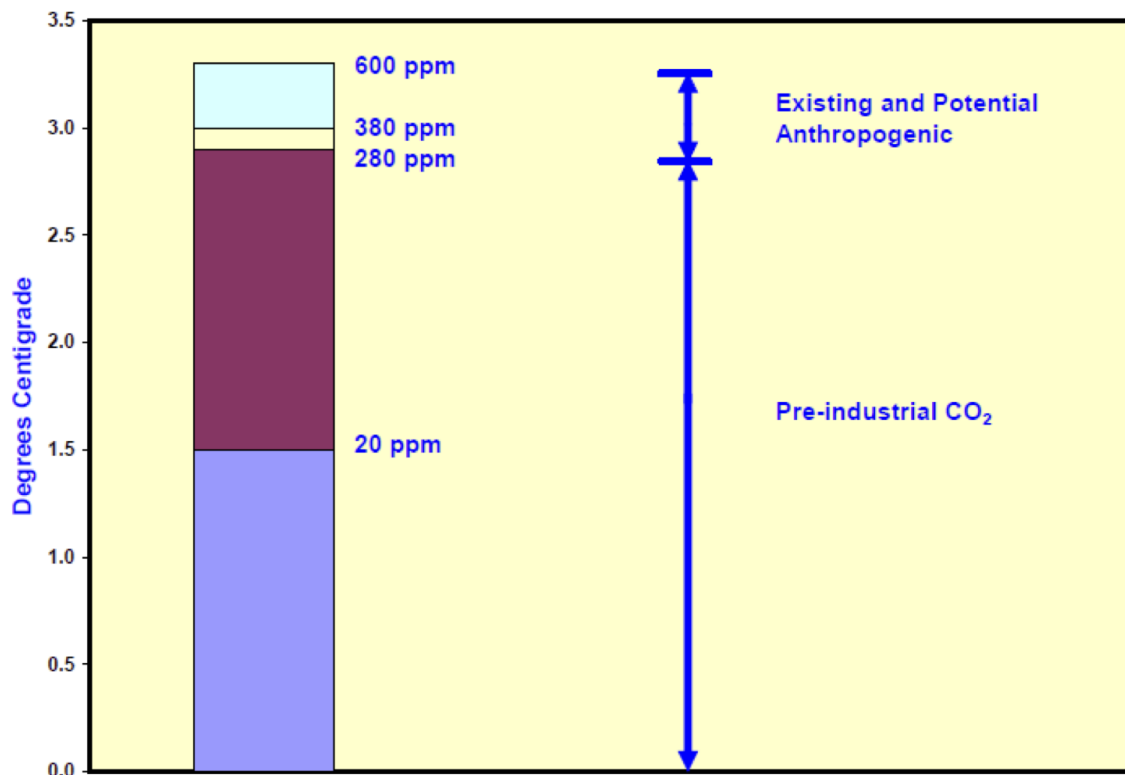
**Falsch. Wer das behauptet, verwechselt den natürlichen mit dem vom Menschen gemachten Treibhauseffekt. Wasserdampf hat einen Anteil von gut 60 Prozent am**



**natürlichen  
Treibhauseffekt,  
der unsere  
Erdoberfläche warm  
(15 Grad) hält.  
Hätten wir ihn  
nicht, wäre unser  
Planet eine  
Eiswüste mit minus  
18 Grad. Wir  
pusten gigantische  
Mengen CO<sub>2</sub> in die**

**Luft, das  
verstärkt den  
Treibhauseffekt.  
Richtig ist dass  
der Wasserdampf  
den überwiegenden  
Beitrag liefert.  
Der vom CO<sub>2</sub> kann  
aus der folgenden  
Graphik abgelesen  
werden inklusive  
des Effektes einer**

# Steigerung des CO<sub>2</sub>-Gehaltes in der Atmosphäre.



Prof. R S  
Lindzen[3] vom MIT  
hat abgeschätzt,  
dass die

**Temperatur um  
0.3-0.5°C steigt  
bei einer  
Verdopplung des  
CO<sub>2</sub>-Gehaltes. Dies  
ist die relevante  
Zahl! Die vom IPCC  
und von PL  
prognostizierten  
Anstiege von  
einigen Grad  
implizieren eine**

**positive**

**Rückkopplung des  
Temperaturanstiege  
s mit dem**

**ausgehenden**

**Strahlungsfluss.**

**Dies ist ein**

**charakteristisches**

**Merkmale aller**

**Klimamodelle.**

**Satellitenmessungen**

**zeigen aber**

**exakt das  
Gegenteil. Es gibt  
eine negative  
Rückkopplung.  
Alarmistische  
Meldungen beruhen  
demnach auf  
falschen  
Prämissen.  
Wenn also der  
gigantische Effekt  
des CO2 mickrige**

**0.3-0.5°C**

**Temperaturanstieg,  
bei einer nach**

**Prof. T V**

**Segalstadt**

**(Geologe) aus**

**Mangel an fossilen**

**Rohstoffen nicht  
möglichen**

**Verdopplung des**

**CO<sub>2</sub>-Gehaltes,**

**bedeutet, dann**

**braucht sich  
niemand darüber zu  
sorgen. Im  
Gegenteil, es wäre  
sogar gut so, da  
diese sehr  
moderate Änderung  
zusammen mit einem  
höheren CO<sub>2</sub>-Gehalt  
die Produktion der  
Biomasse deutlich  
erhöhen würde.**



**These 4:  
Zusätzliches  
CO<sub>2</sub>  
in der**

**Atmosphäre  
hat  
keinen  
Einfluss**

**aufs**

**Klima.**

**Falsch.**

**Die**

**Skeptiker**

**verstehen  
nicht,  
warum CO2  
überhaupt  
klimawirk  
sam ist.**

**Die  
Atmosphäre  
ist wie  
ein  
riesiges  
Treibhaus**

**, wobei  
das CO<sub>2</sub>  
die Rolle  
des  
Glases  
übernimmt**

**– es**

**lässt die**

**Wärme**

**nicht**

**entweichen**

**n. Je**

**mehr CO<sub>2</sub>,**

**desto**

**dichter**

**oder**

**dicker**

**das Glas**



**und umso**

**größer**

**die**

**Erwärmung**

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**Den**

**Skeptiker**

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**physikalisi**

**schen**

**Unsinn zu**

**erzählen**

**ist die**

**schiere**

**Unverschämtheit.**

**Die**

**Die**

**Atmosphäre  
e, ein  
System  
mit  
freier  
Teilchen**

**konvektion**

**, mit**

**einem**

**Treibhaus**

**, bei dem**

**gerade**

**diese**

**Konvektio**

**n durch**

**das Glas**

**unterbroc**

**hen wird,**

**zu**

**vergleichen,**

**zeugt**

**von nicht**

**verstande**

**ner**



**Physik.**

**Schon vor**

**mehr als**

**hundert**

**Jahren**

**hat Prof.**

**R W Wood  
experimen  
tell  
gezeigt,  
dass die  
Temperatu**

**r in**

**einem**

**Treibhaus**

**steigt,**

**weil die**

**Luftzirku**

**lation  
unterbund  
en und  
nicht  
weil die  
IR-**

**Strahlung**

**von dem**

**Glas**

**absorbier**

**t wird.**

**Das**

**Experiment  
t wurde  
kürzlich  
von E  
Loock  
(2008)**

**und N S**

**Nahle**

**(2011)**

**verifizie**

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**Selbst**

**jeder**

**Laie**

**kennt**

**diesen**

**Effekt**

**von dem**



**Auto in**

**der**

**Sonne.**

**Obwohl**

**viel**

**weniger**

**Strahlung**

**in das**

**Auto**

**eintritt**

**als die**

**Umgebung**

erhält ,  
ist es im  
Wagen  
viel  
wärmer ,  
weil die

**Konvektion  
n sowohl  
durch die  
steigende  
Temperatu  
r als**

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**durch das**

**beschränkt**

**te**

**Luftvolumen**

**en**

**unterdrückt wird.**

**Die**

**Situation**

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**sofort**

**verbesser  
t, wenn  
man die  
Fenster  
einen  
Spalt**

**weit**

**öffnet,**

**obwohl**

**dies fast**

**nichts am**

**Strahlung**



**saustausc  
h ändert.**

**Noch eine**

**Frage an**

**PL und**

**die AGW-**

**Sympathis**

**anten :**

**Die**

**Marsatmos**

**phäre**

**besteht**

**zu 95%**

**aus CO<sub>2</sub>.**

**Warum**

**gibt es**

**trotzdem**

**auf dem**

**Mars**

**keinen**

**Treibhaus**

**effekt?**

**Übrigens**

**ist auf**

**dem Mars**

**in den**

**letzten**

**Dekaden**

**des 20.**

**Jahrhunde**

**rt die**

**Temperatu**

**r**

**gestiegen**

**[4]. Dies**

**geschah**

**gerade in**

**dem**

**Zeitraum**

**in dem**

**die Sonne**

**nach PL**

**keinen  
Einfluss  
auf den  
Temperatu  
ranstieg  
auf der**



**Erde**

**hatte.**

**Also auf**

**der Erde**

**bewirkte**

**die**

**Sonnenakt**

**ivität**

**nichts,**

**während**

**sie**

**gleichzei**

**tig die**

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**r auf dem**

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where the reference standard used here is PDB (Pee Dee Belemnite)  $\text{CaCO}_3$ .

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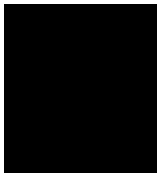
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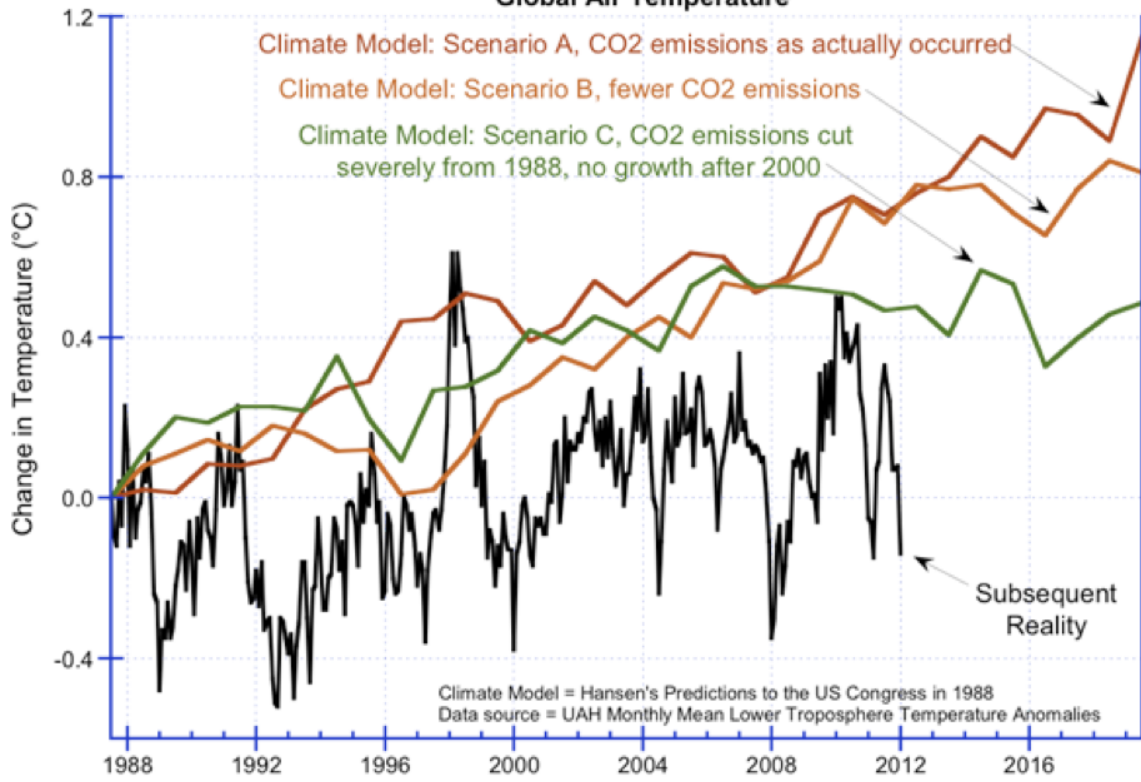
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### Hansen's 1988 Prediction vs NASA Satellite Data Global Air Temperature



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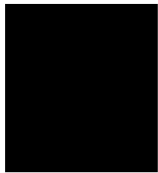
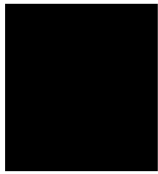
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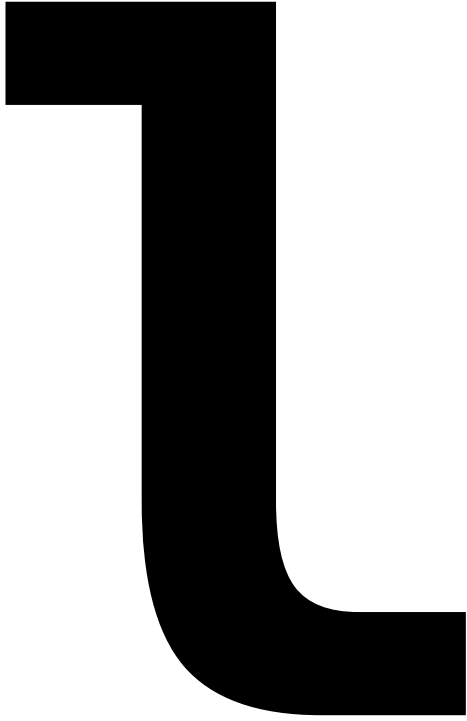
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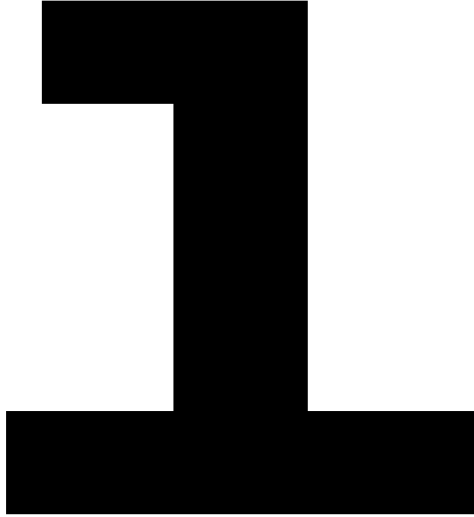
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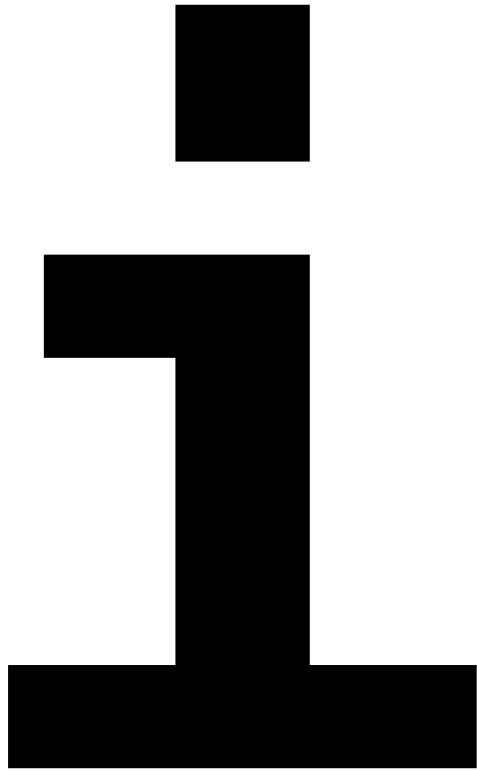


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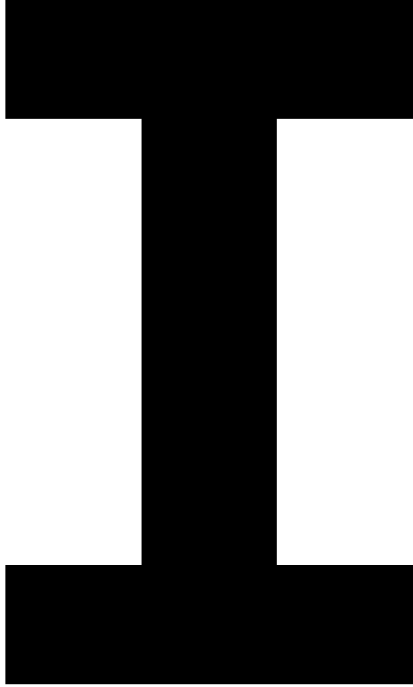
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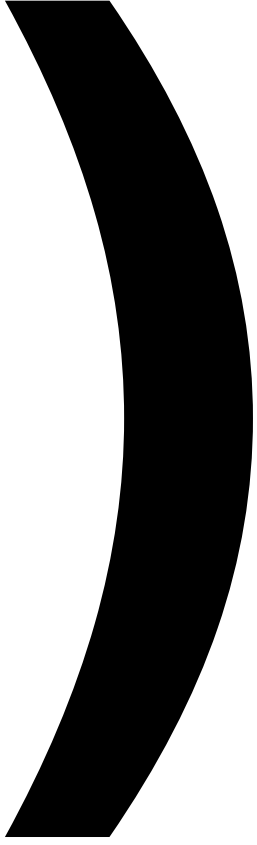
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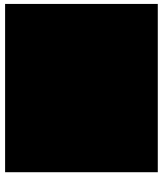
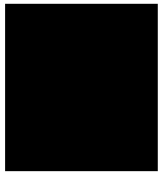
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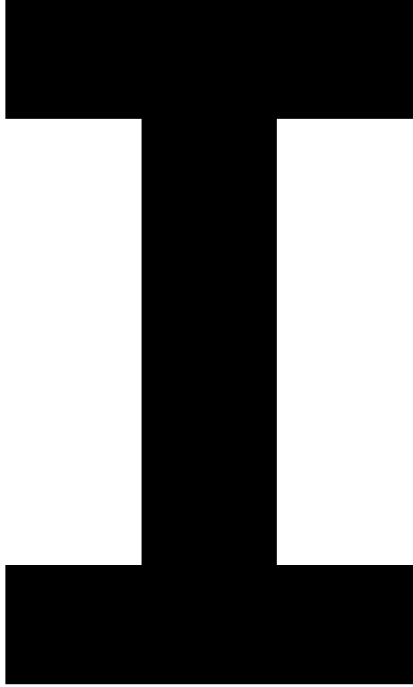
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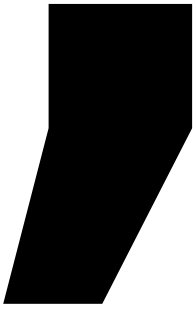
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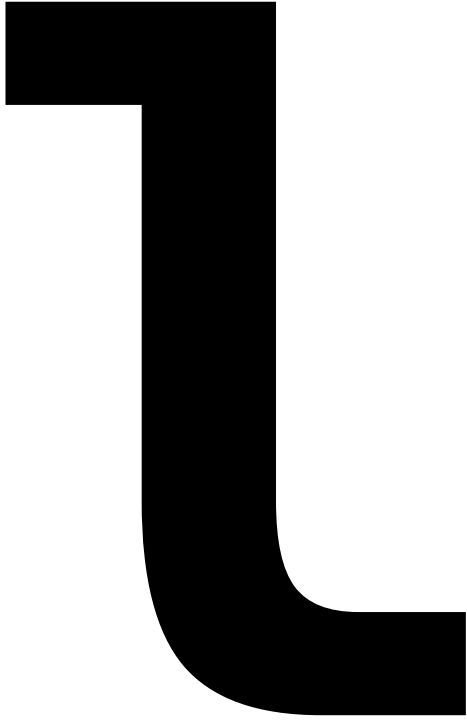


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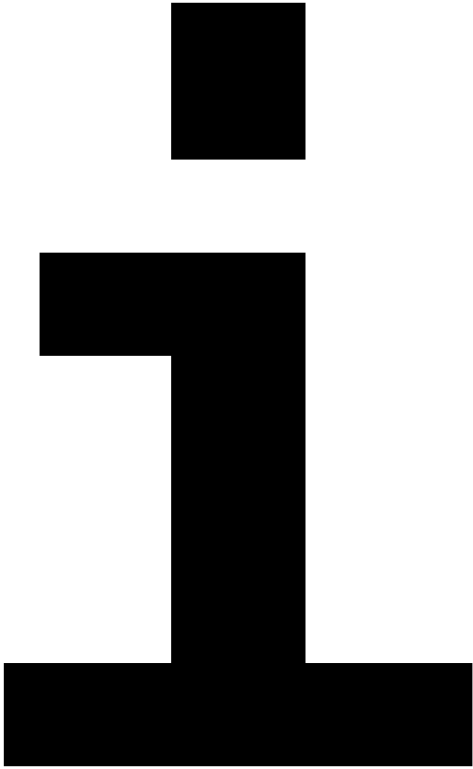
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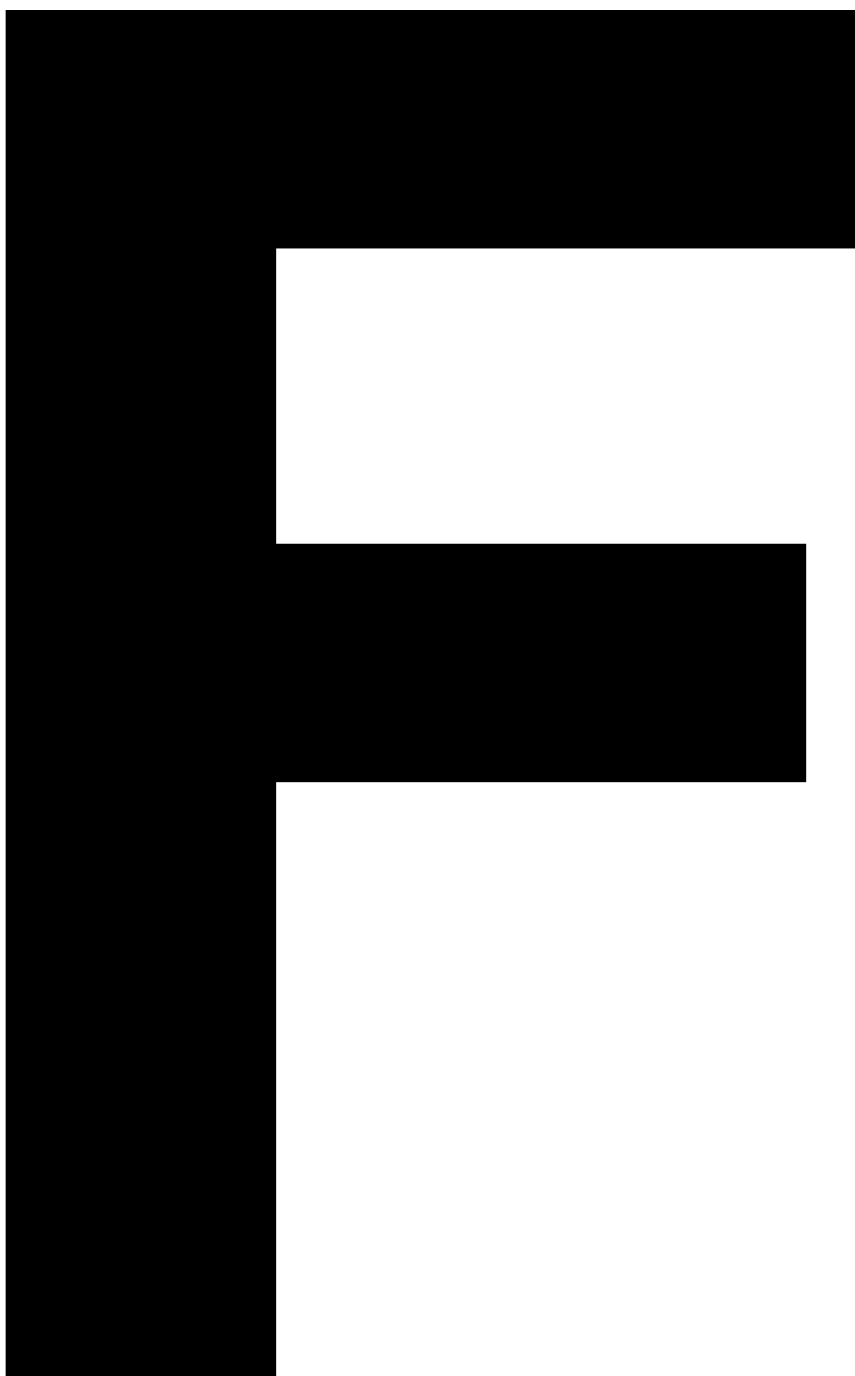


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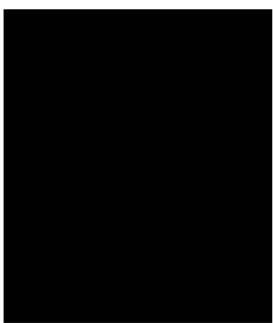
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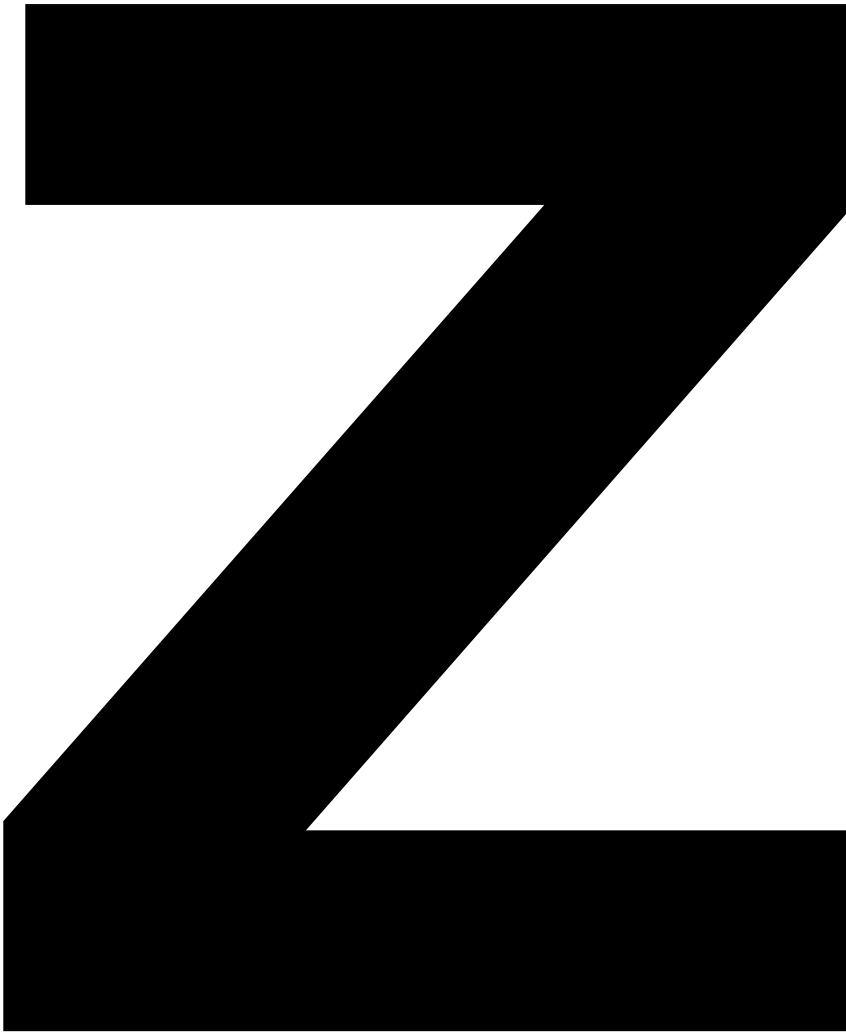






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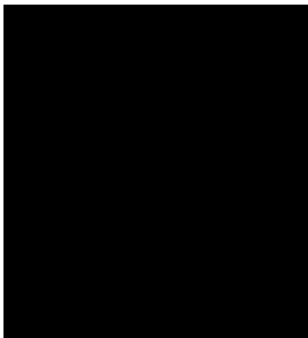


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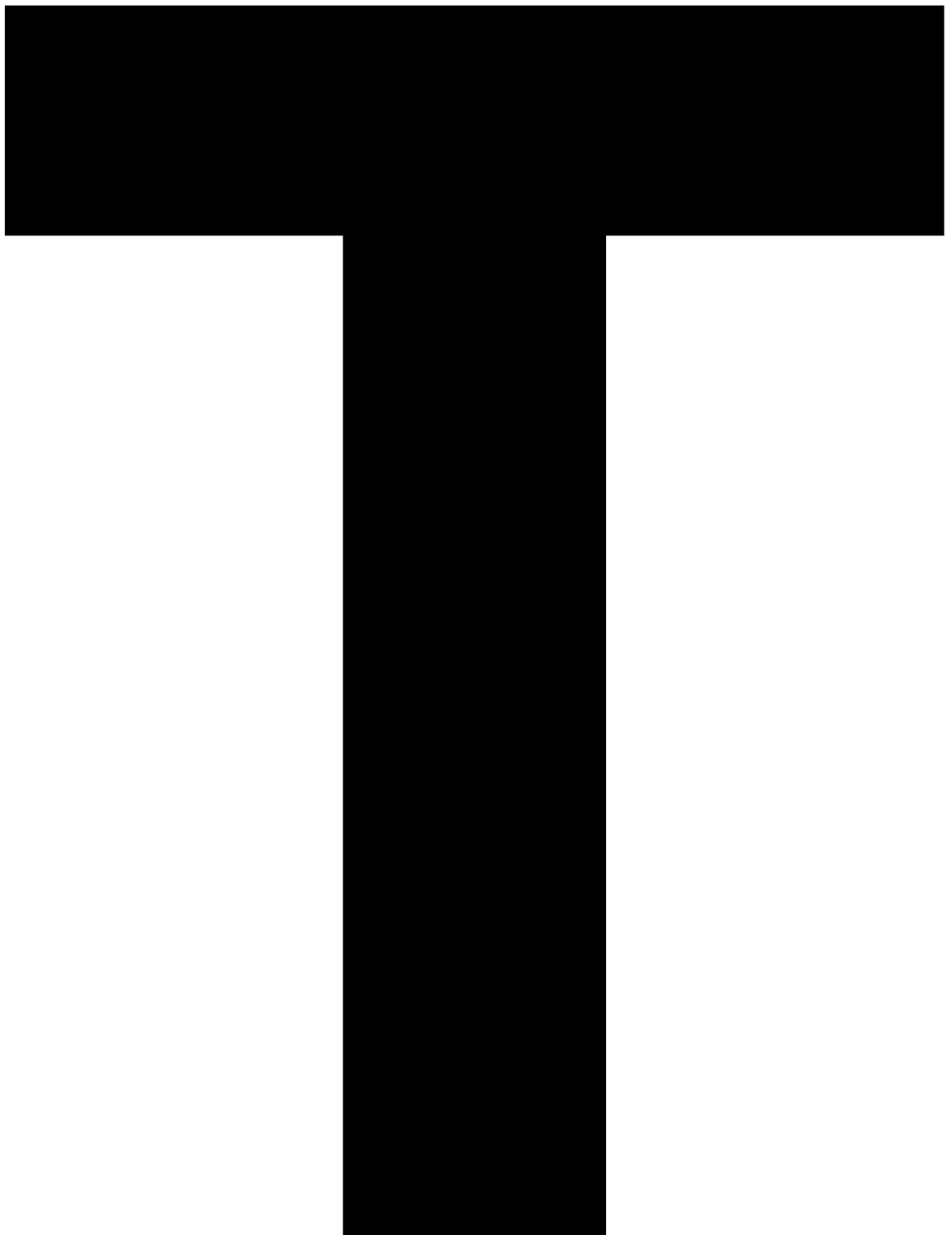




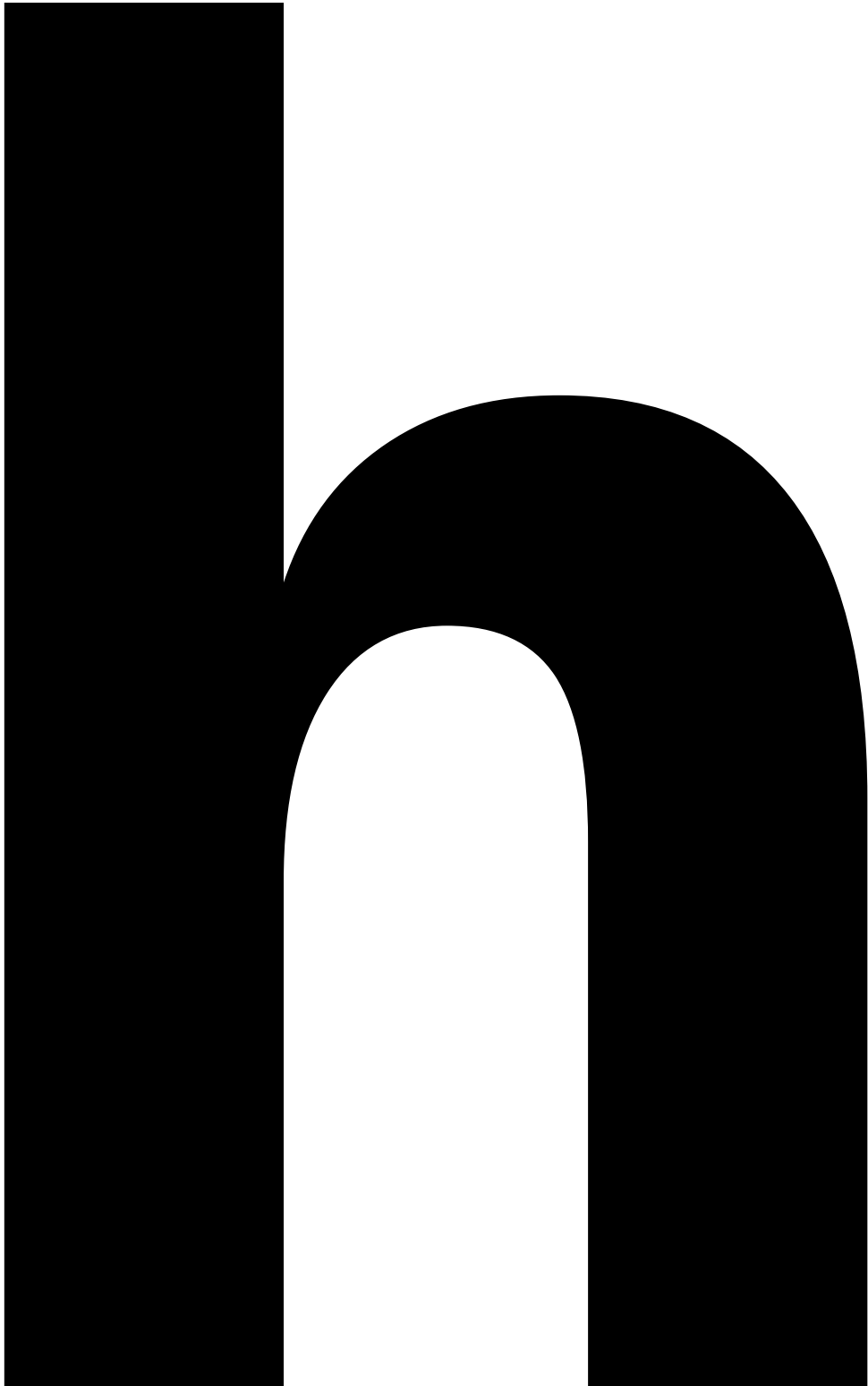














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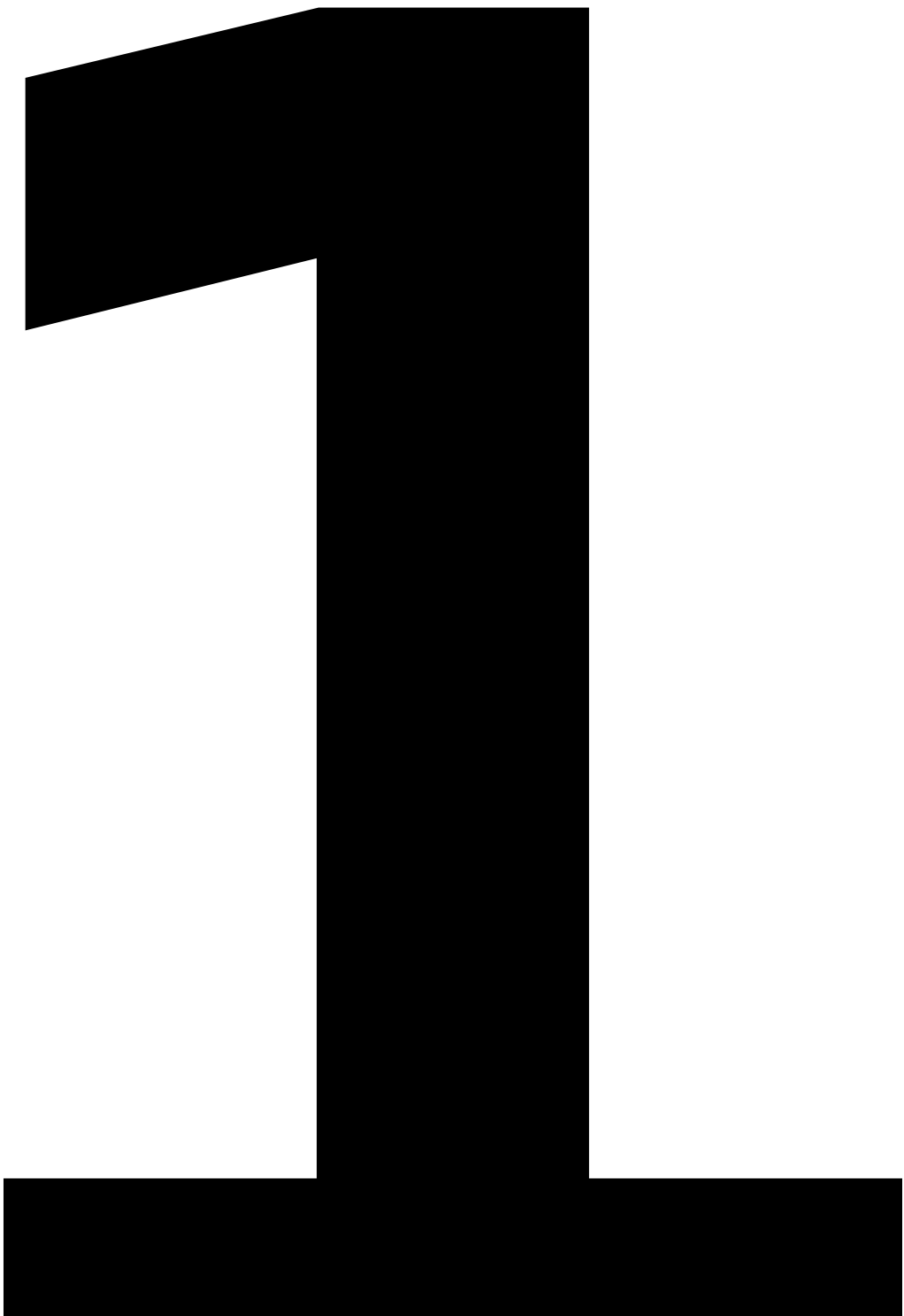
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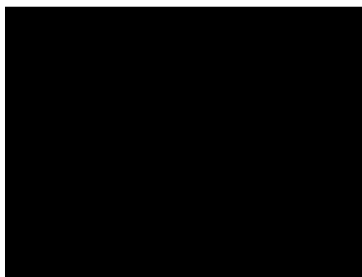
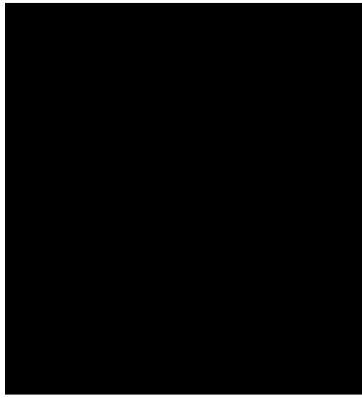


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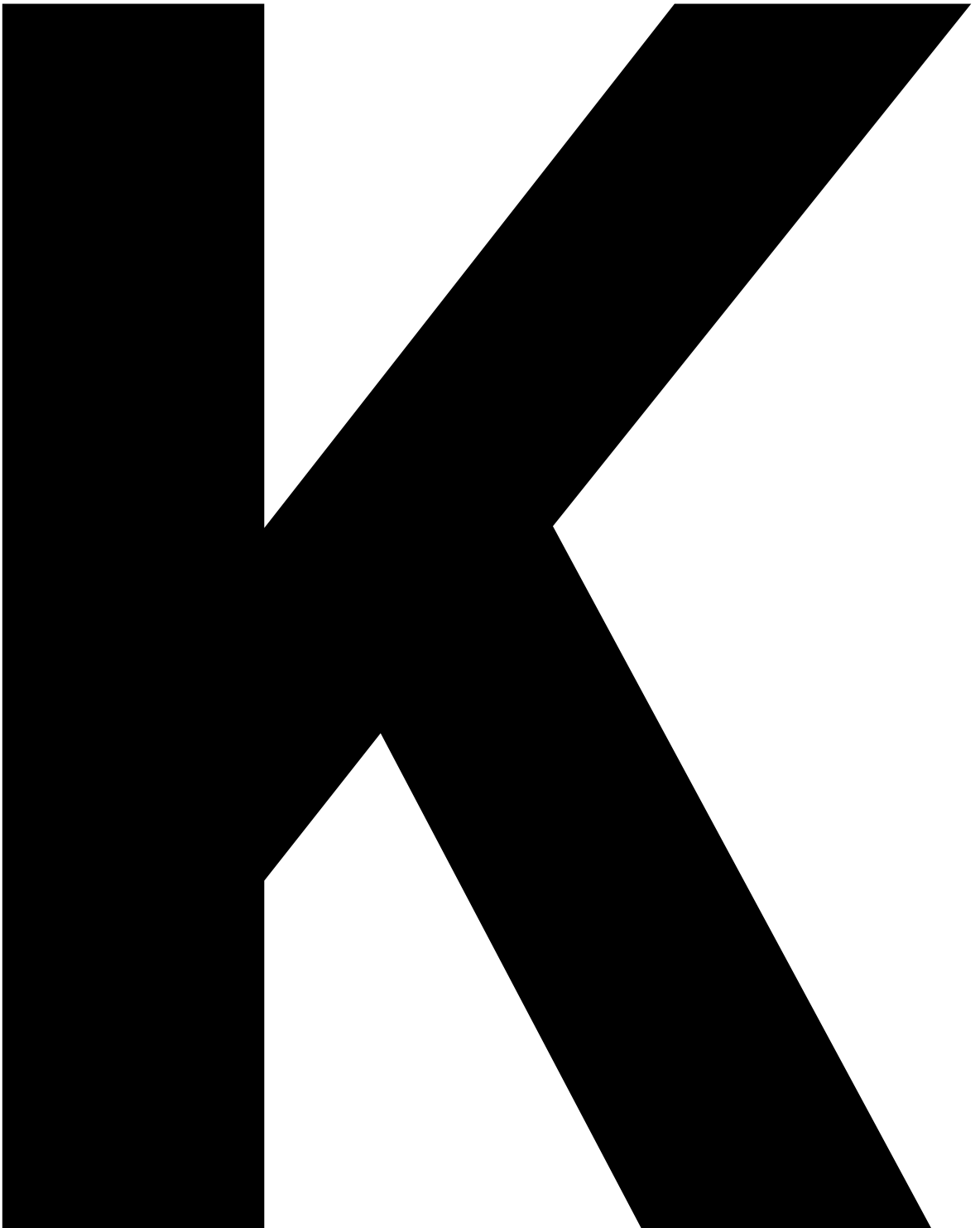










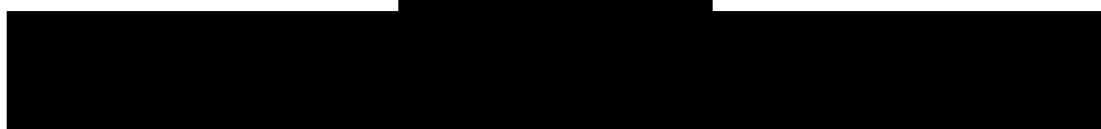
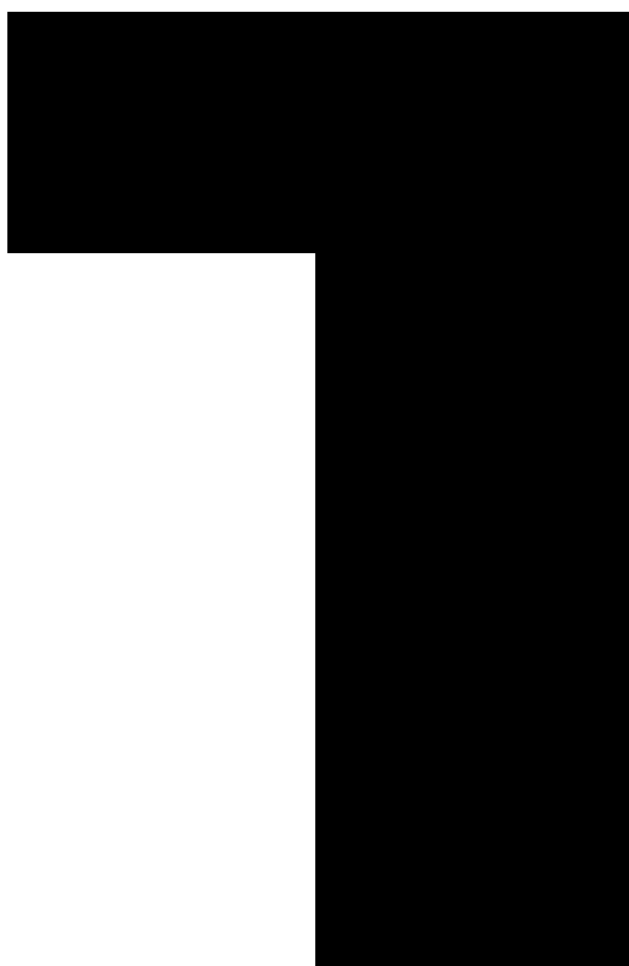
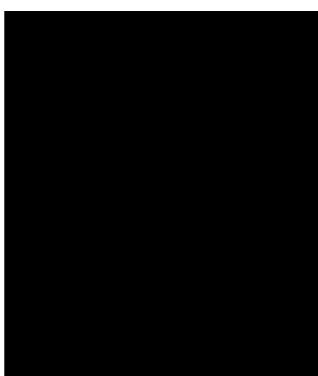




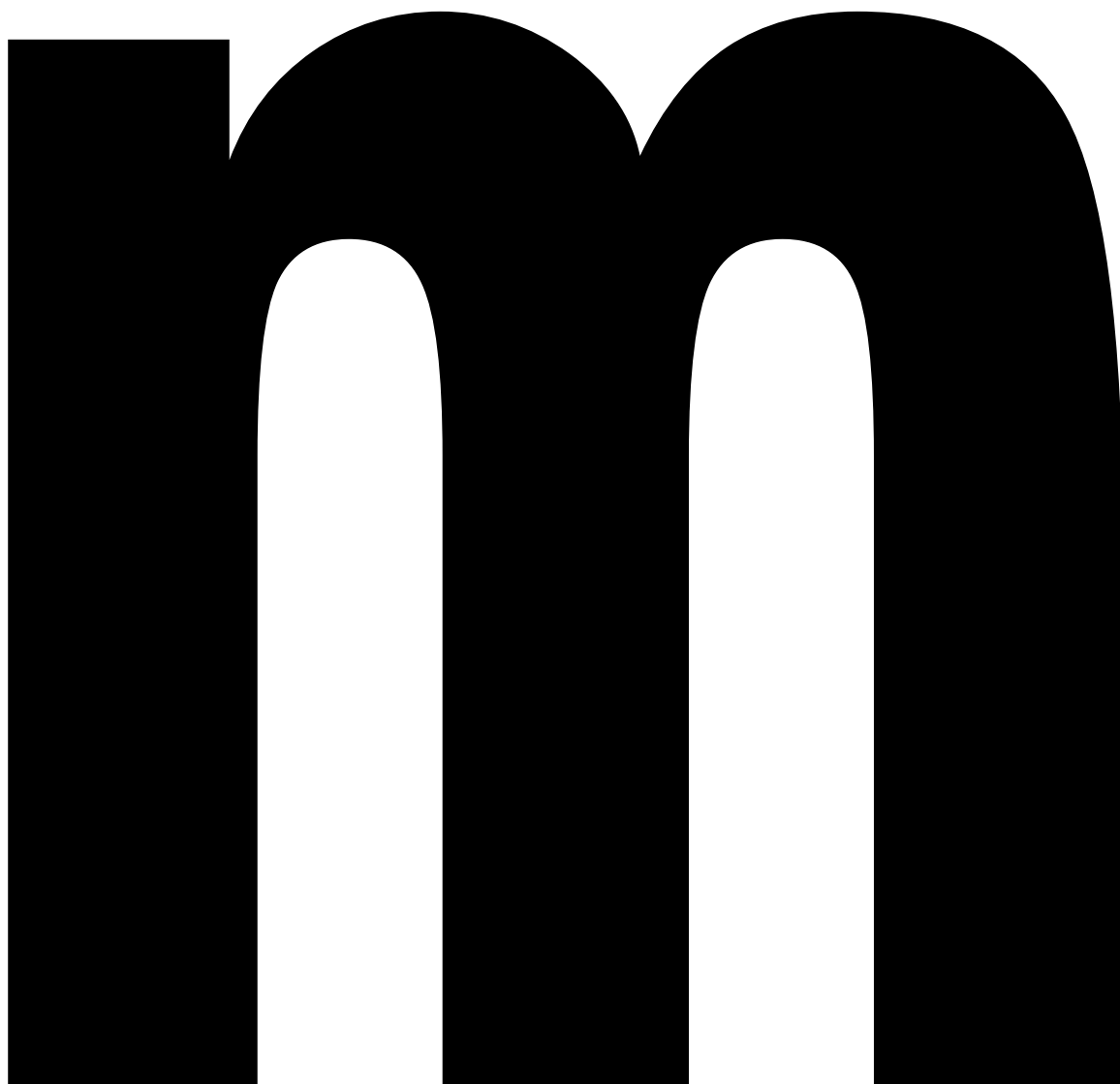


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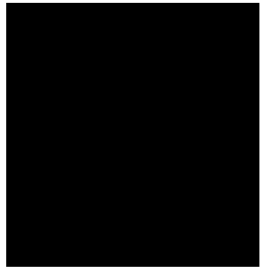






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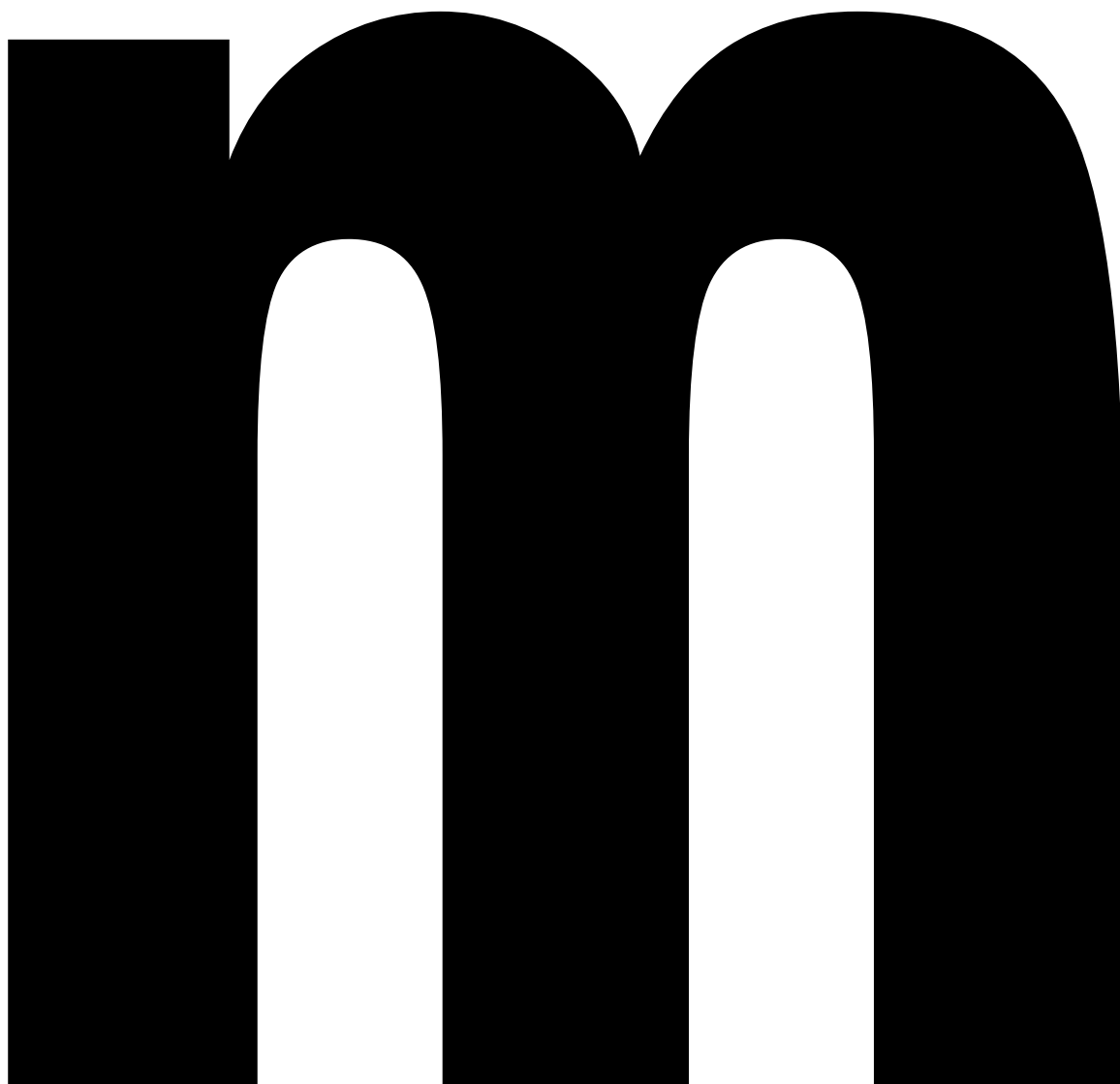








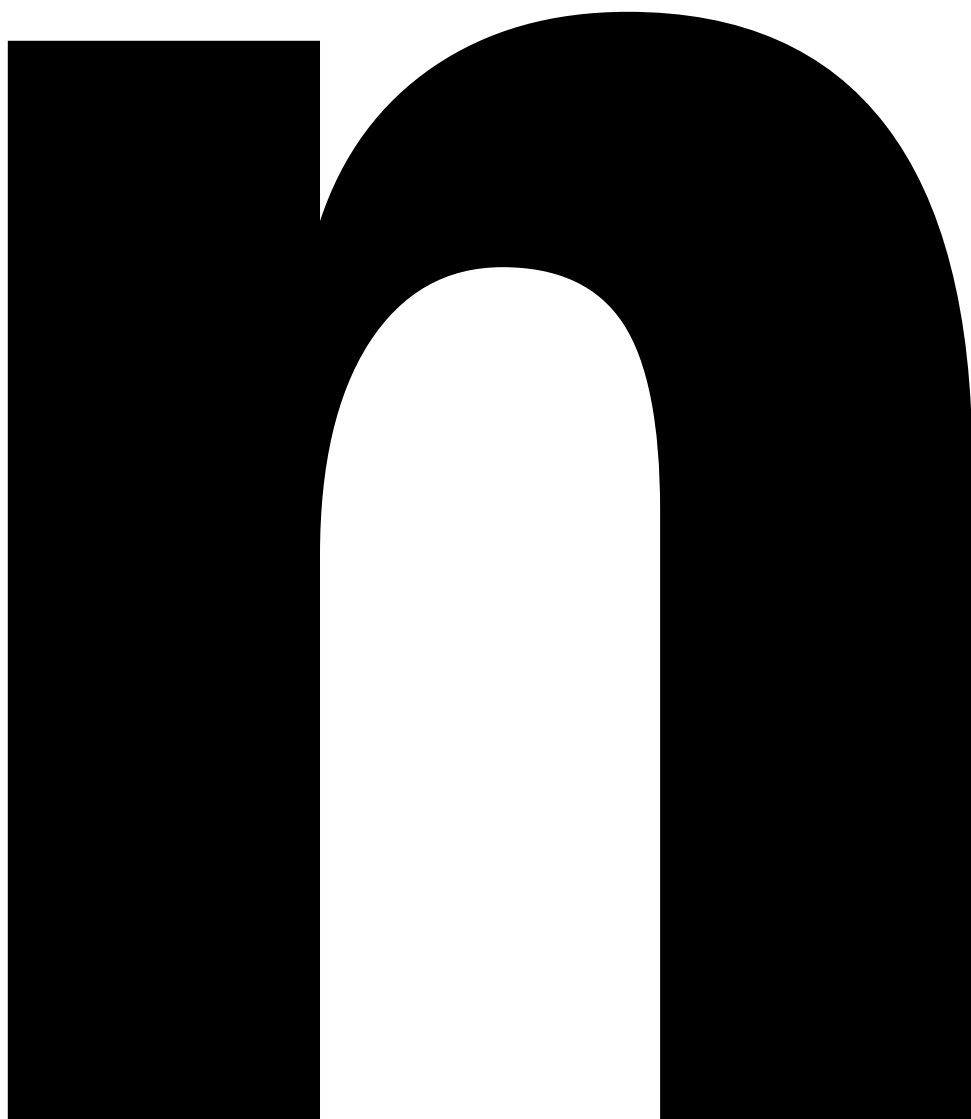






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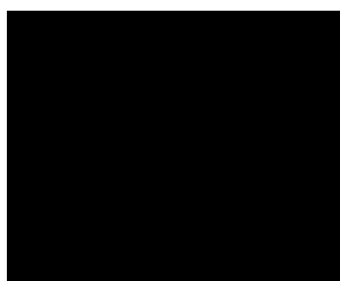






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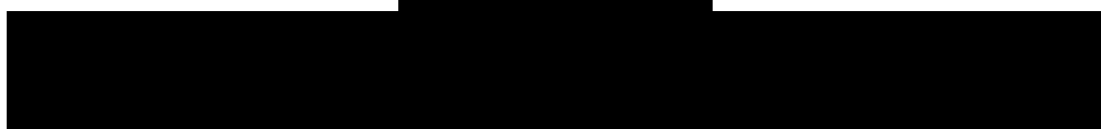
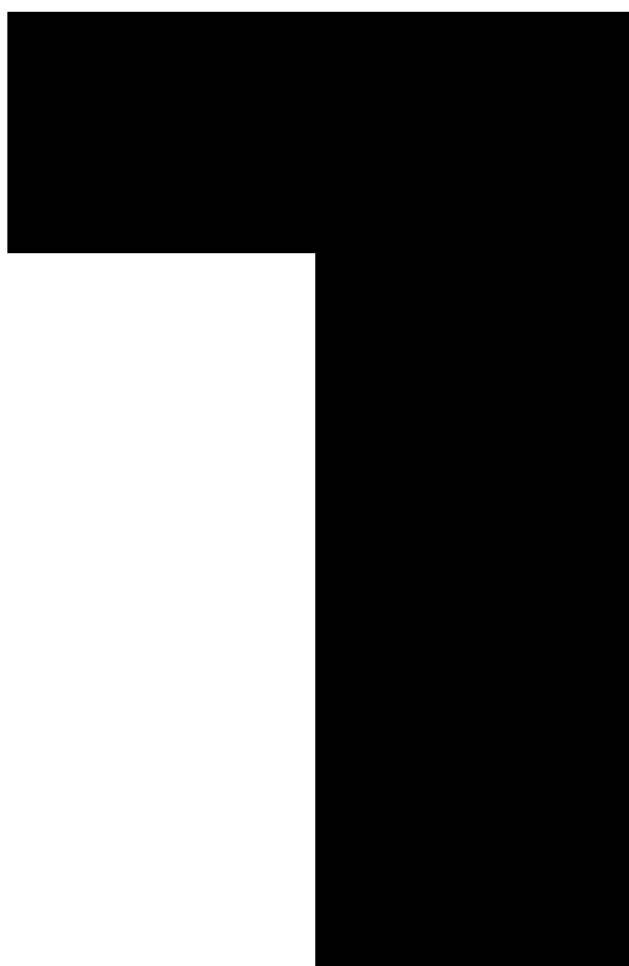
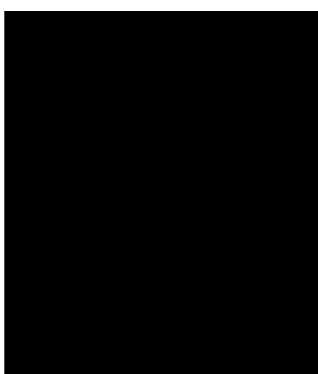






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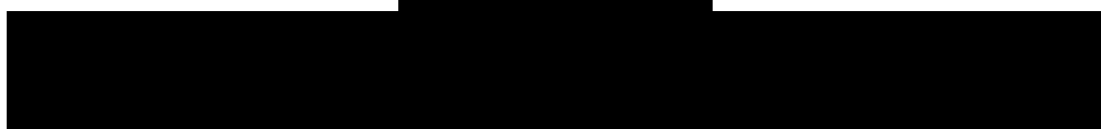
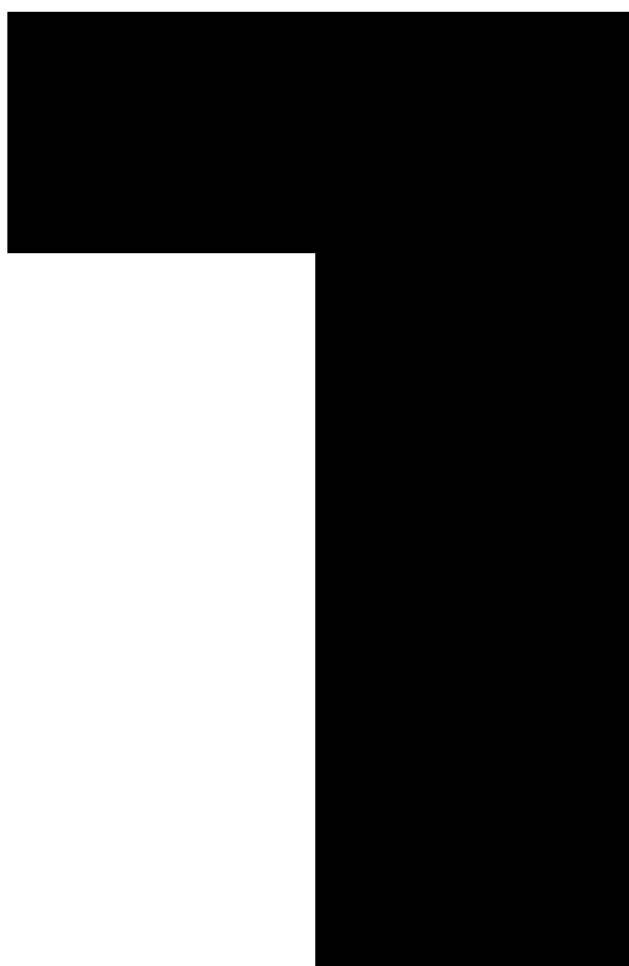
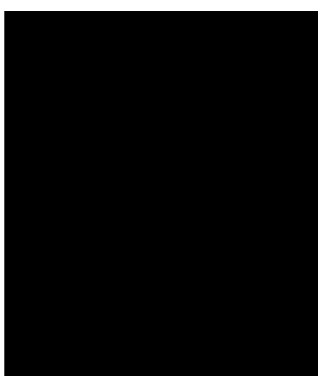


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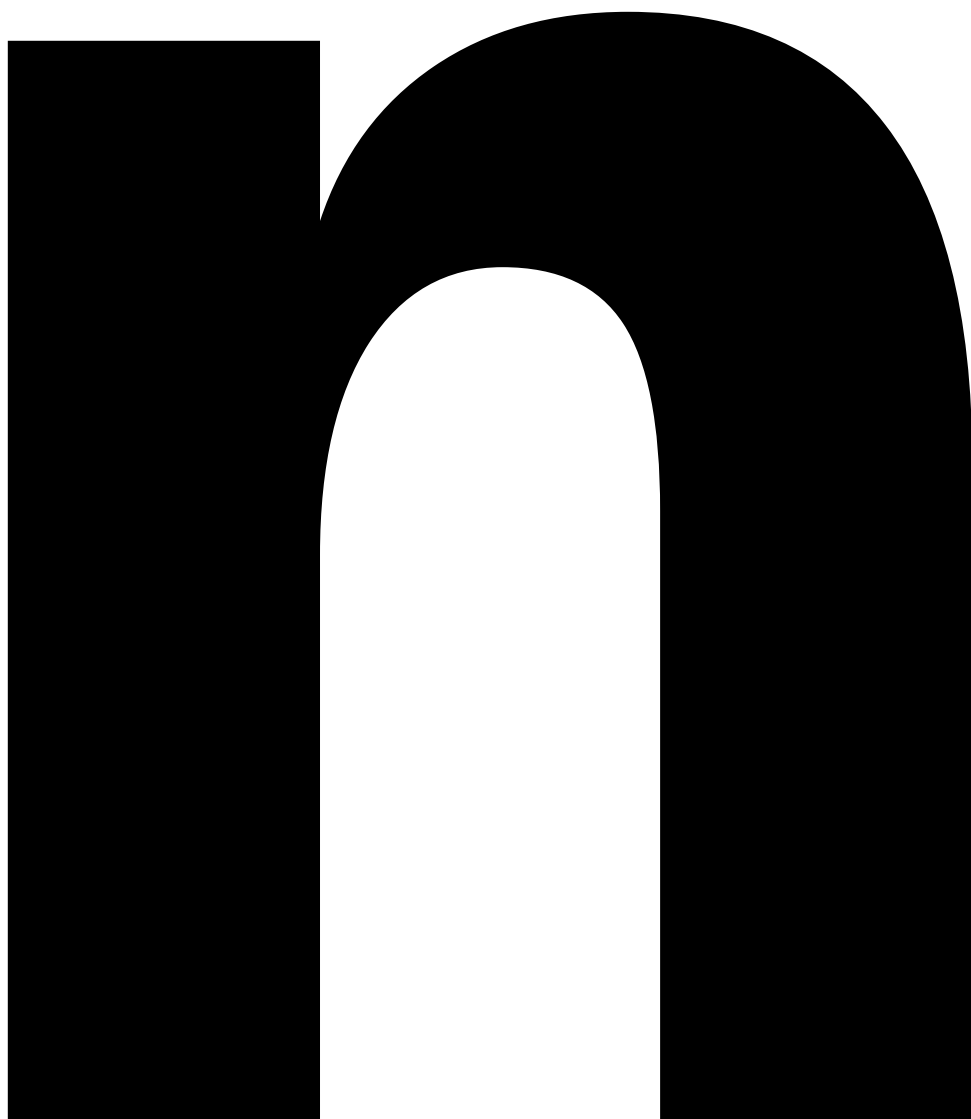
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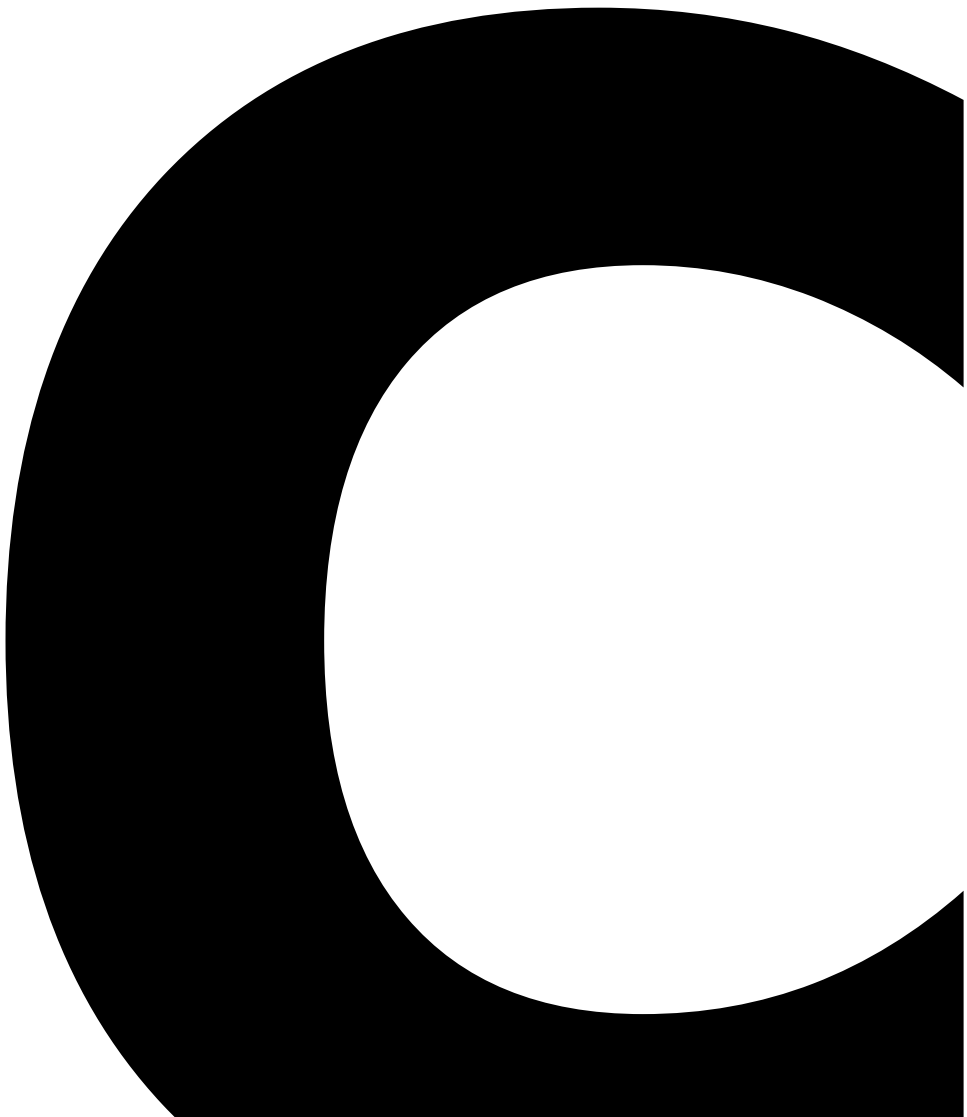


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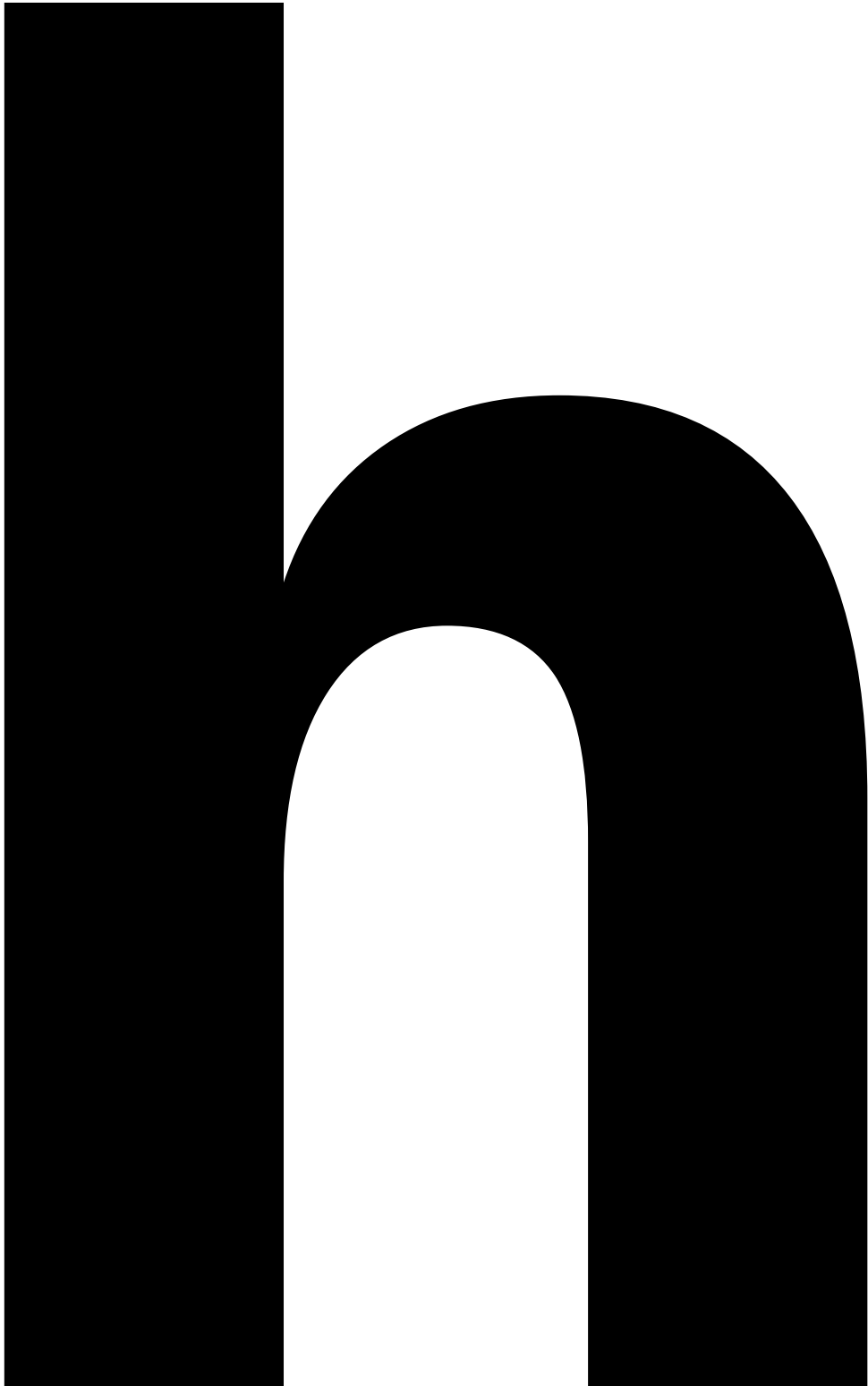
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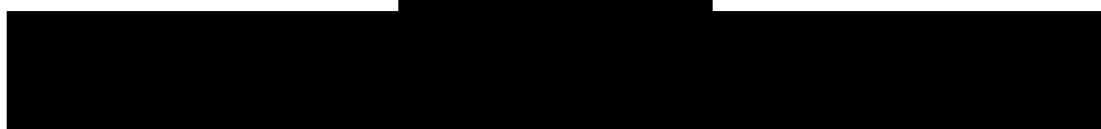
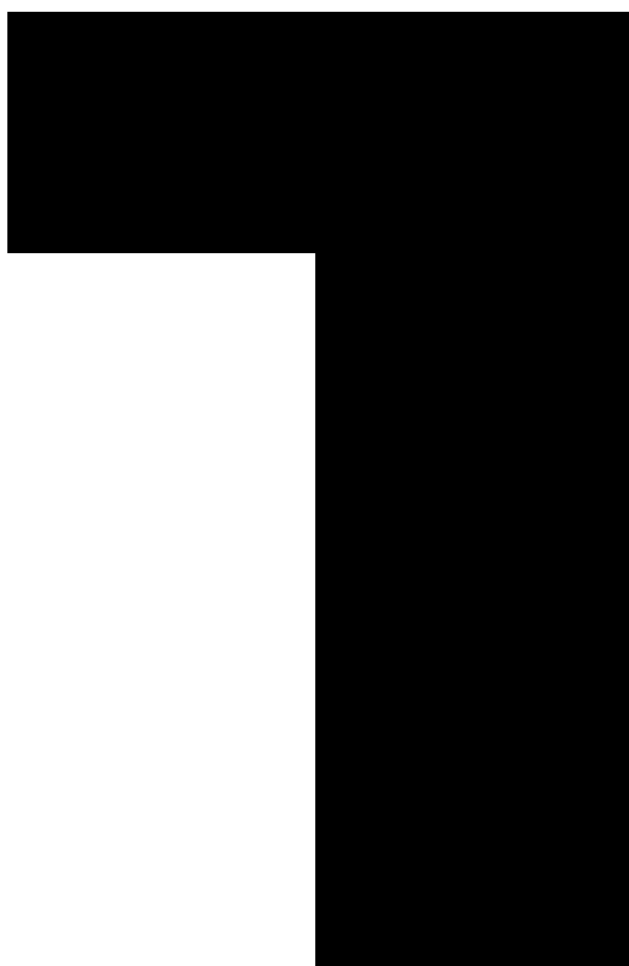
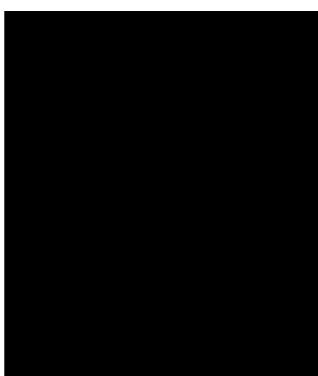




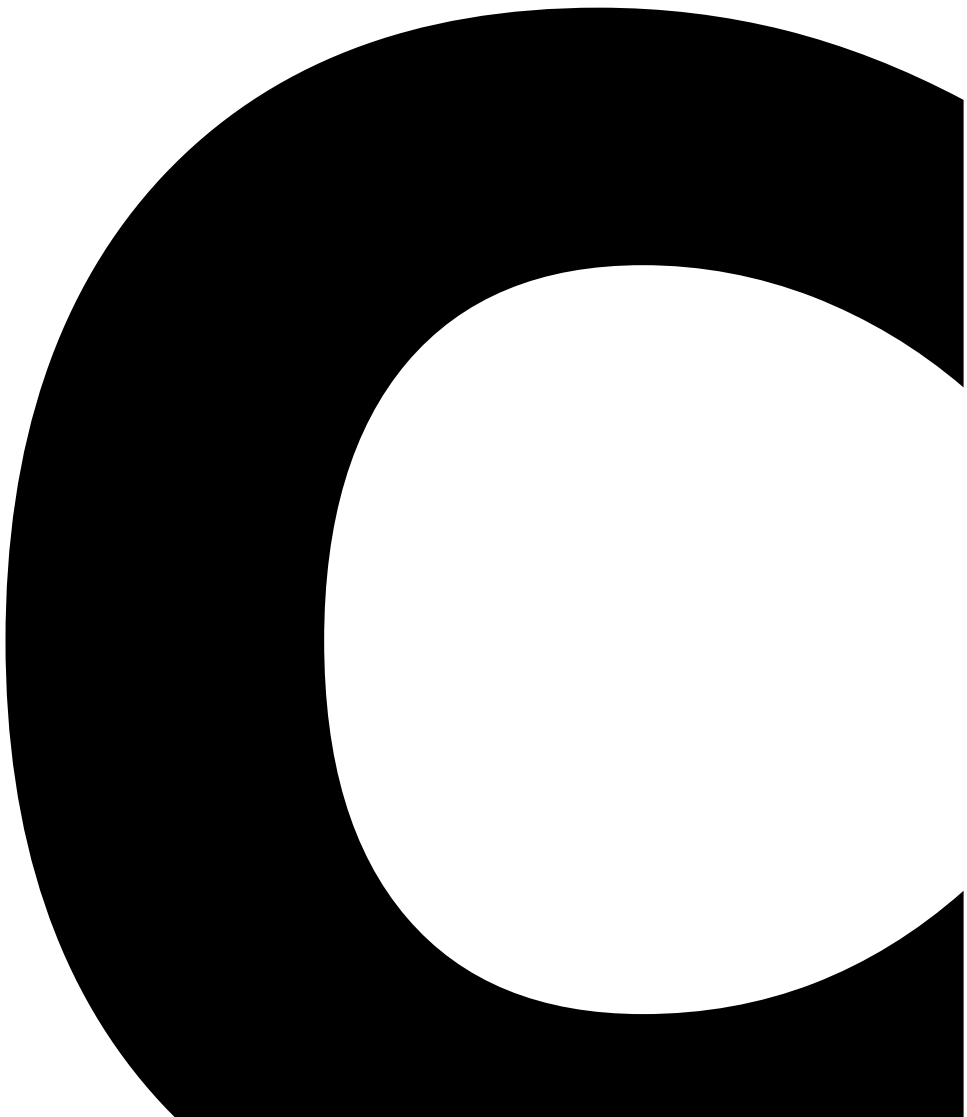




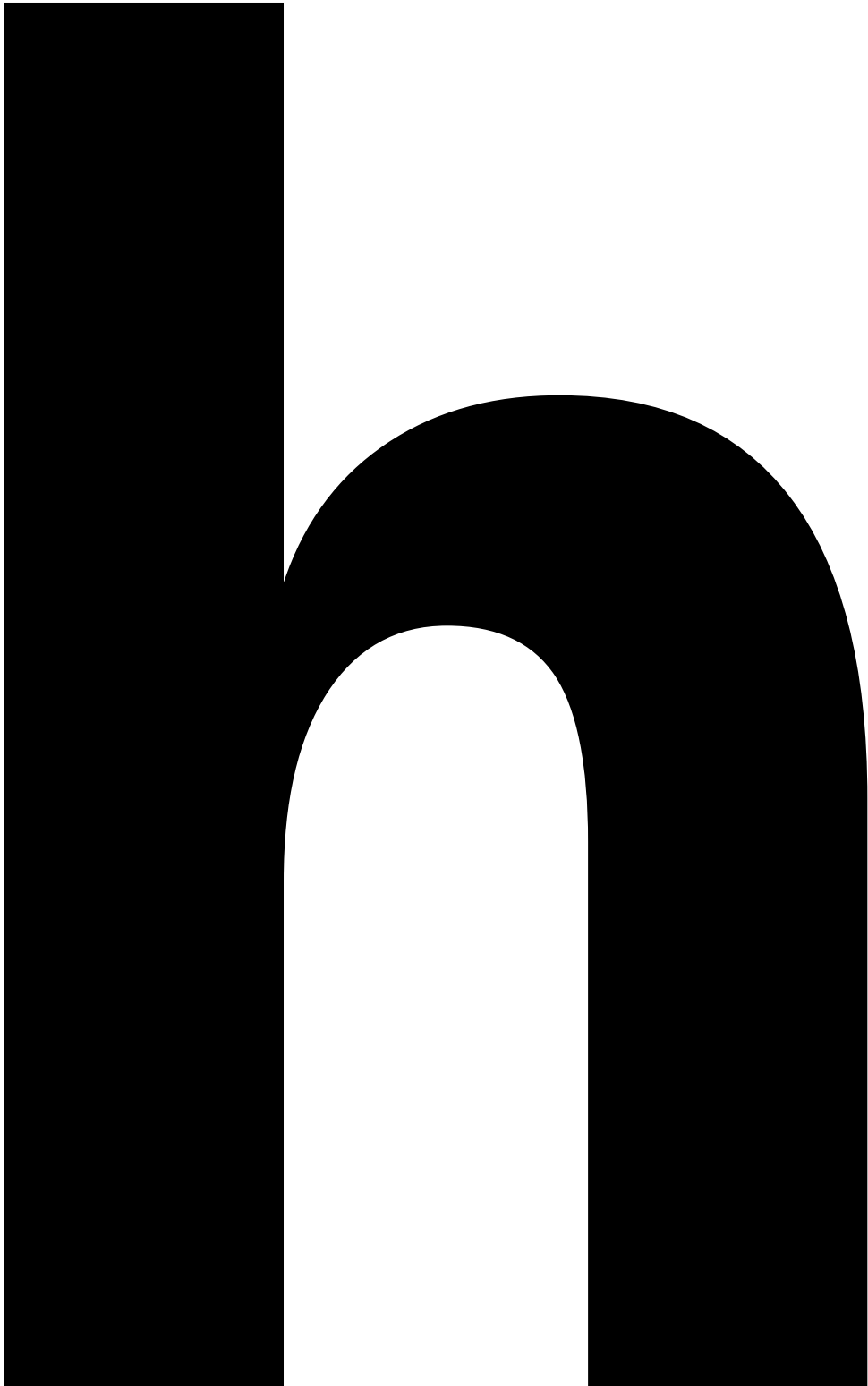






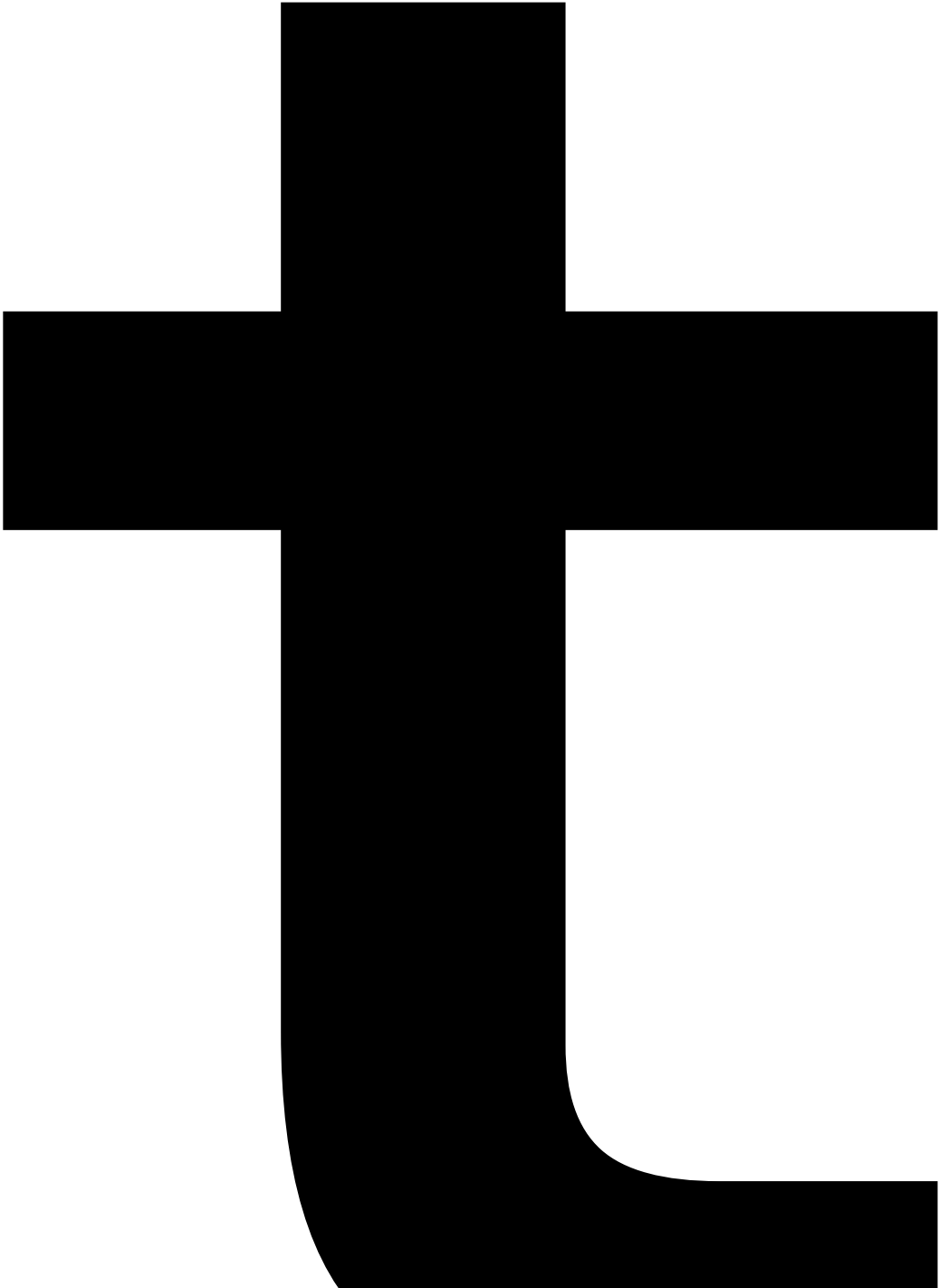














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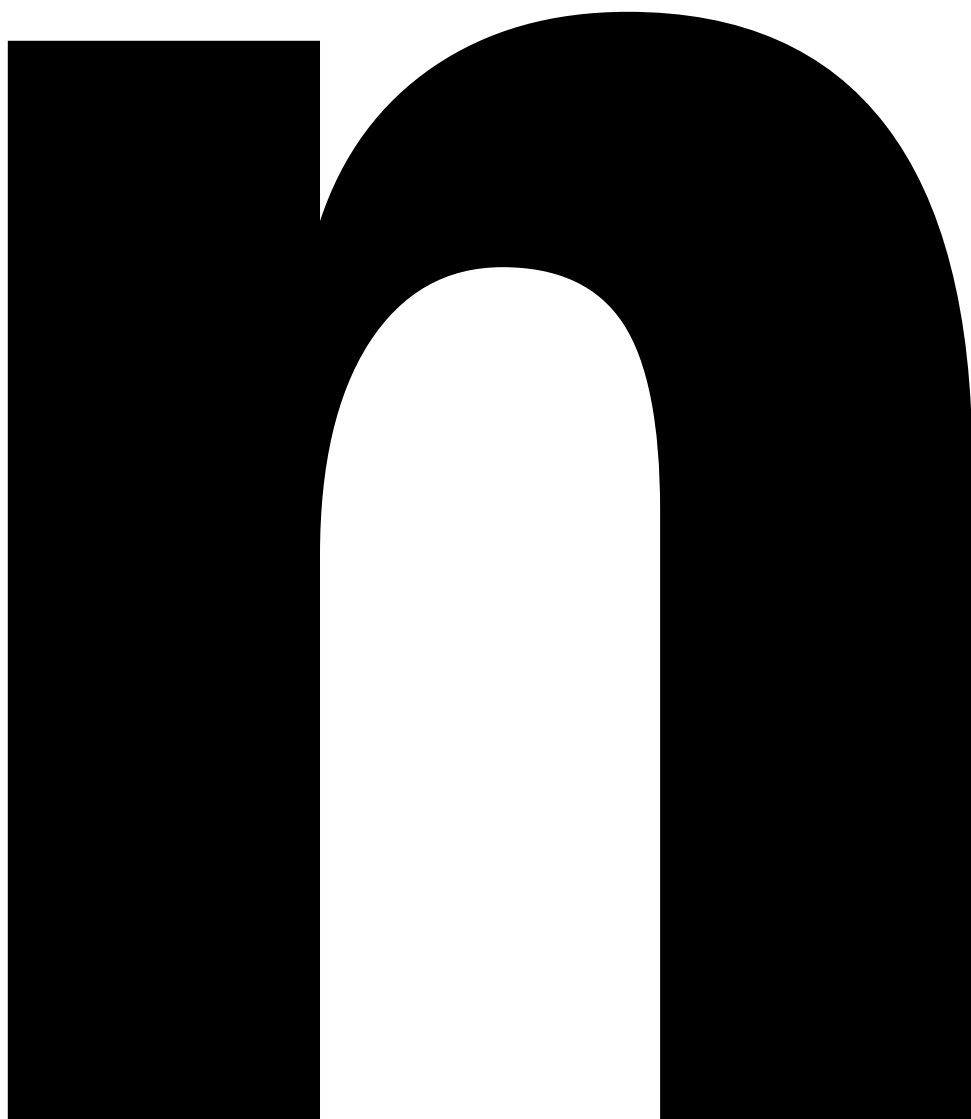


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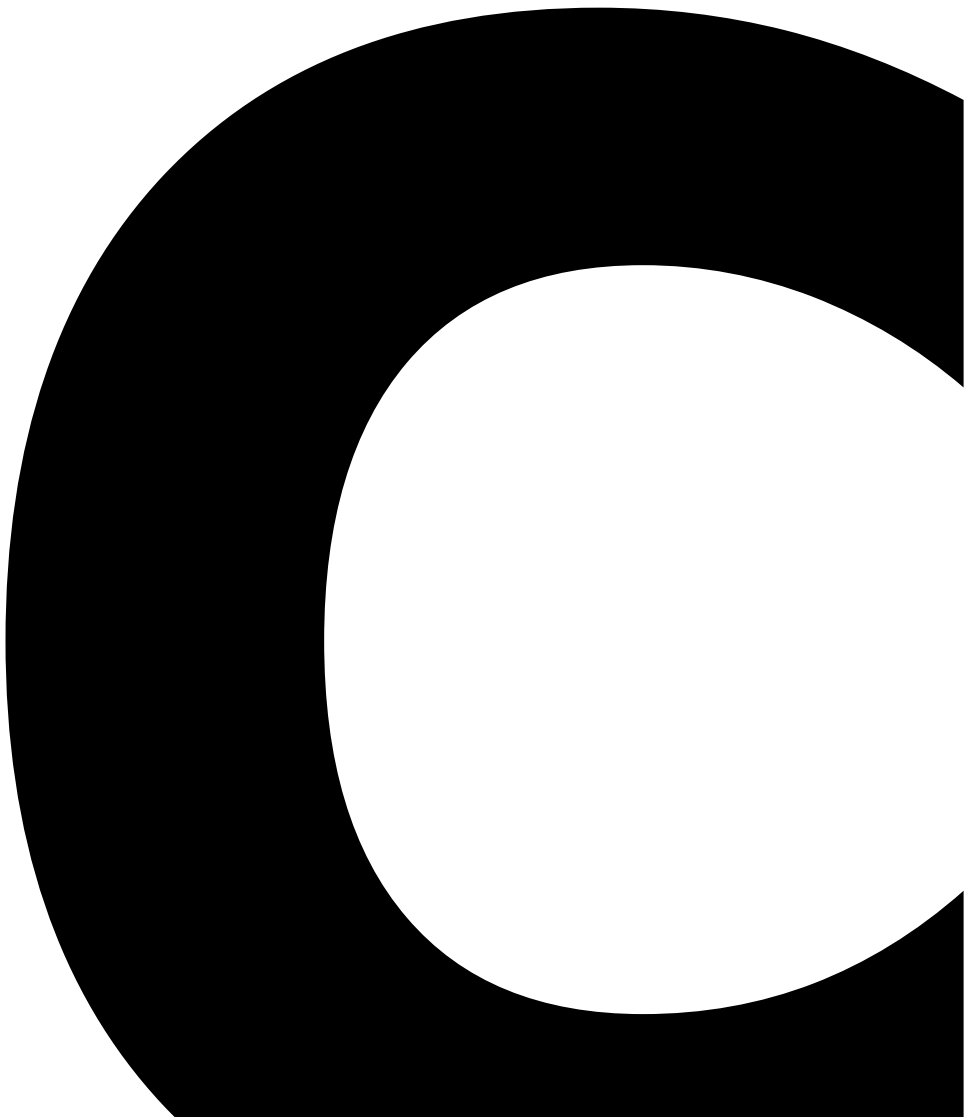




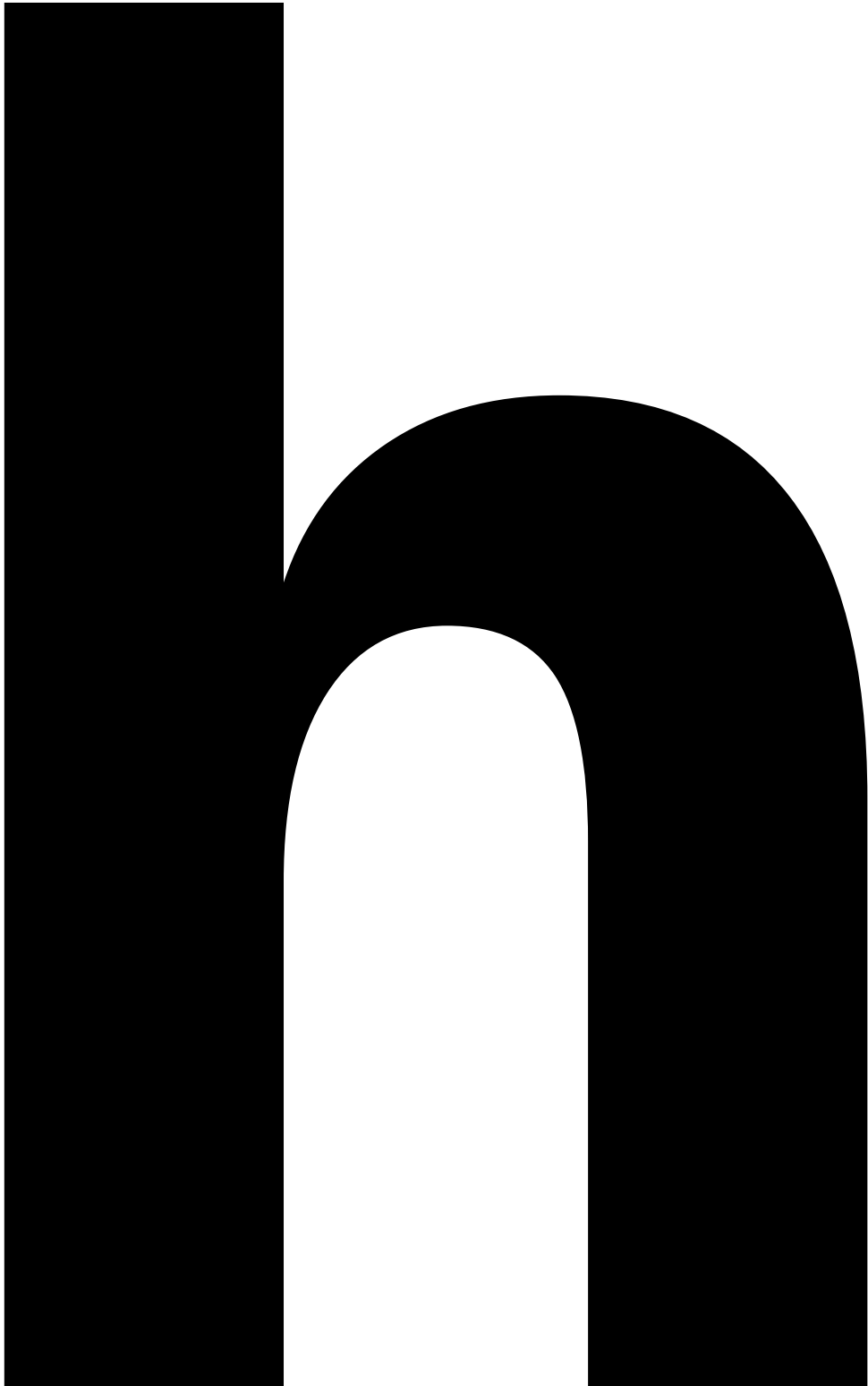


S

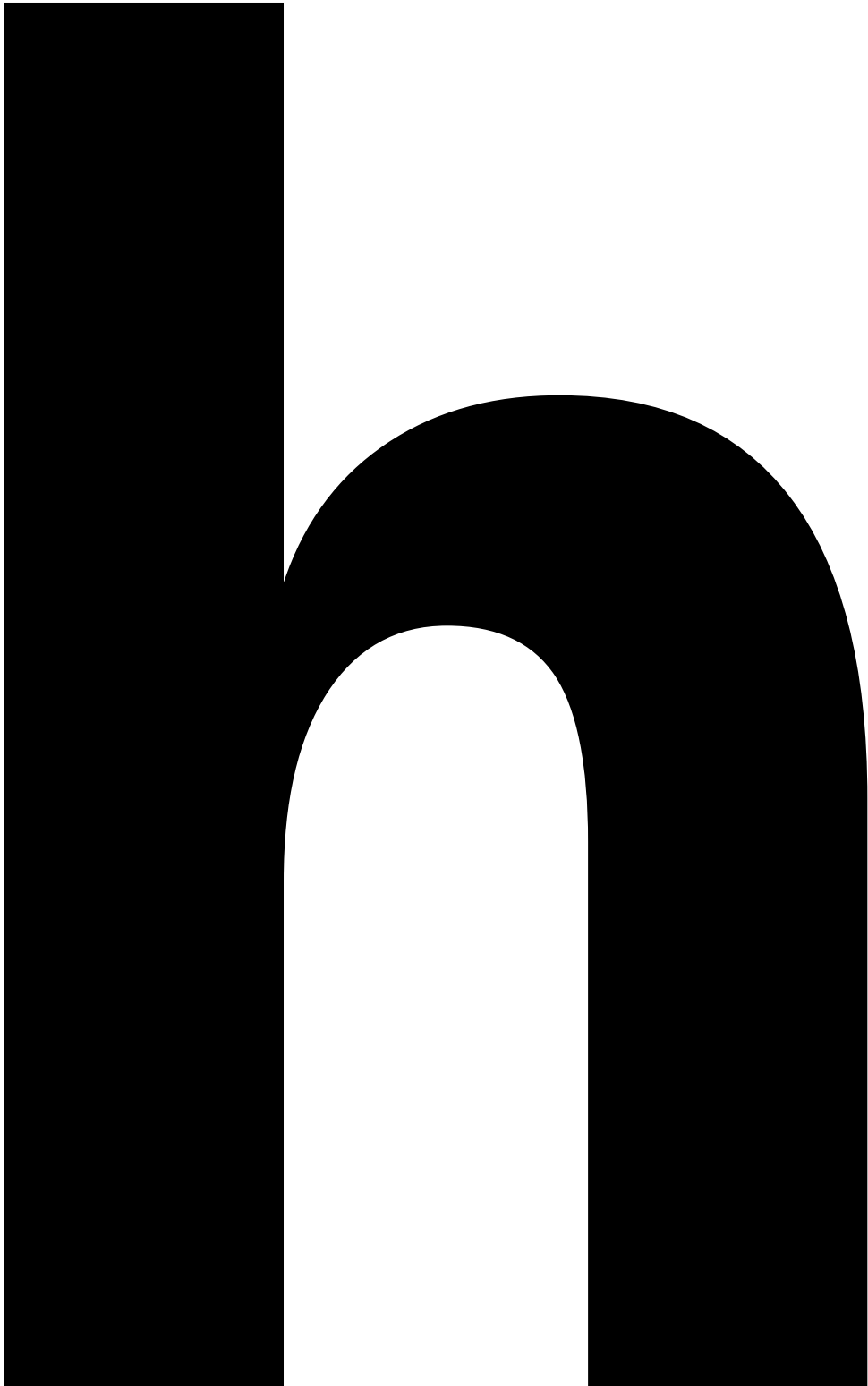










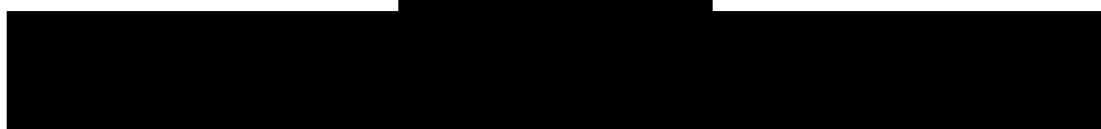
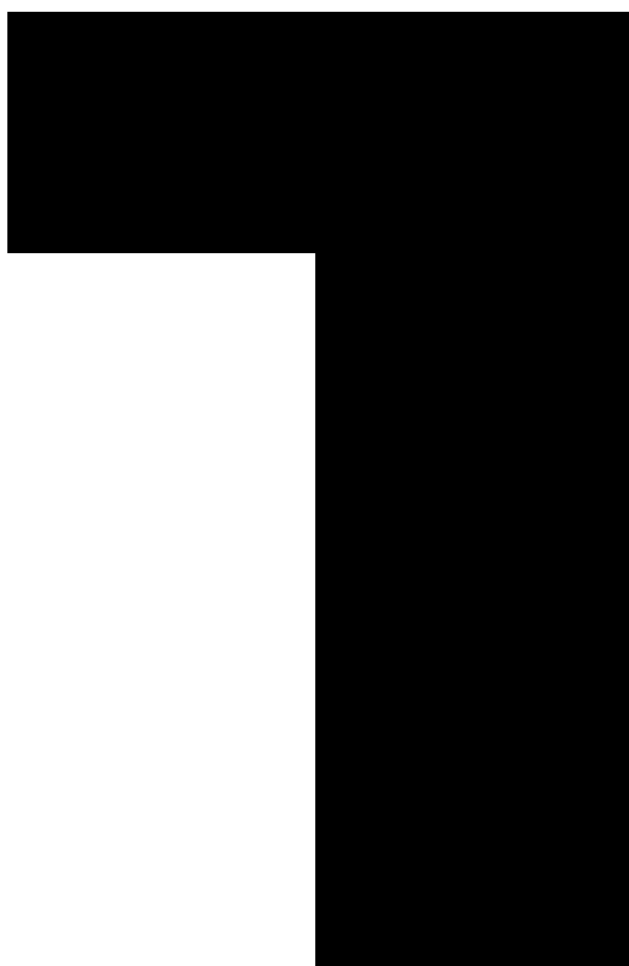
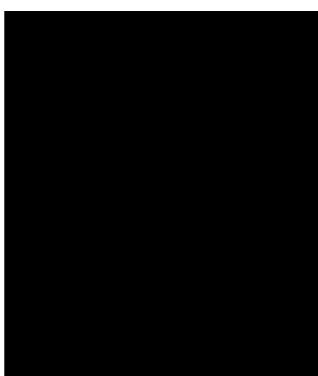




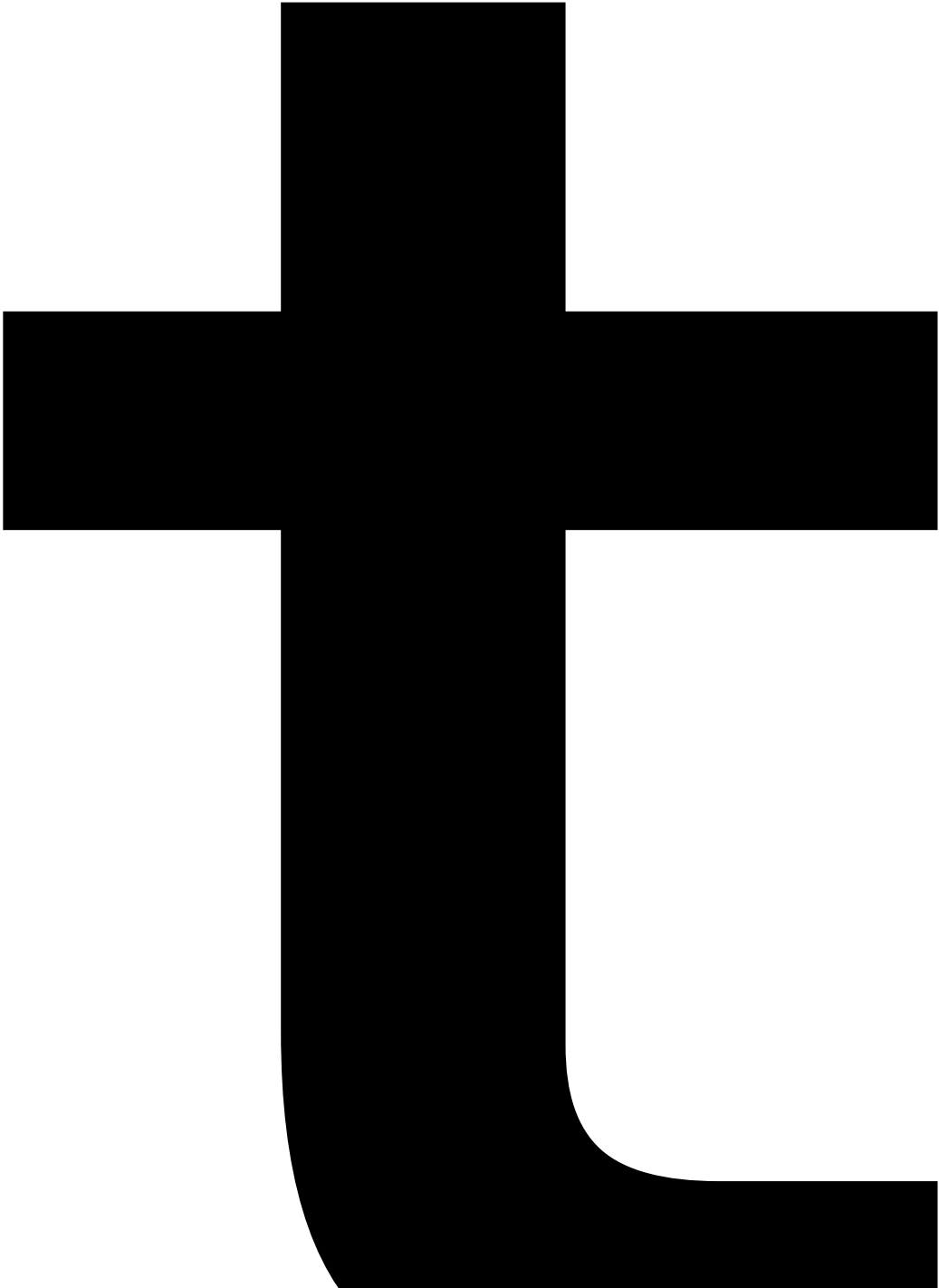


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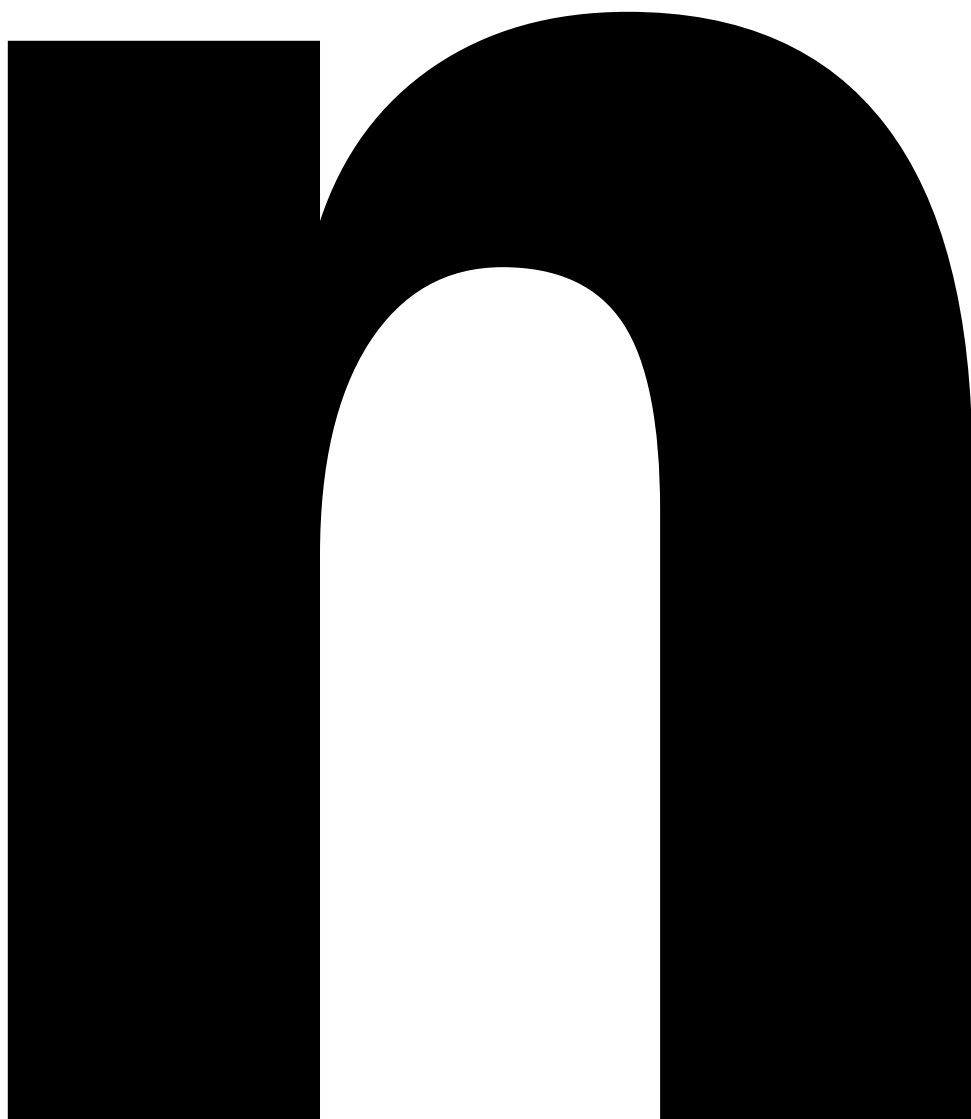






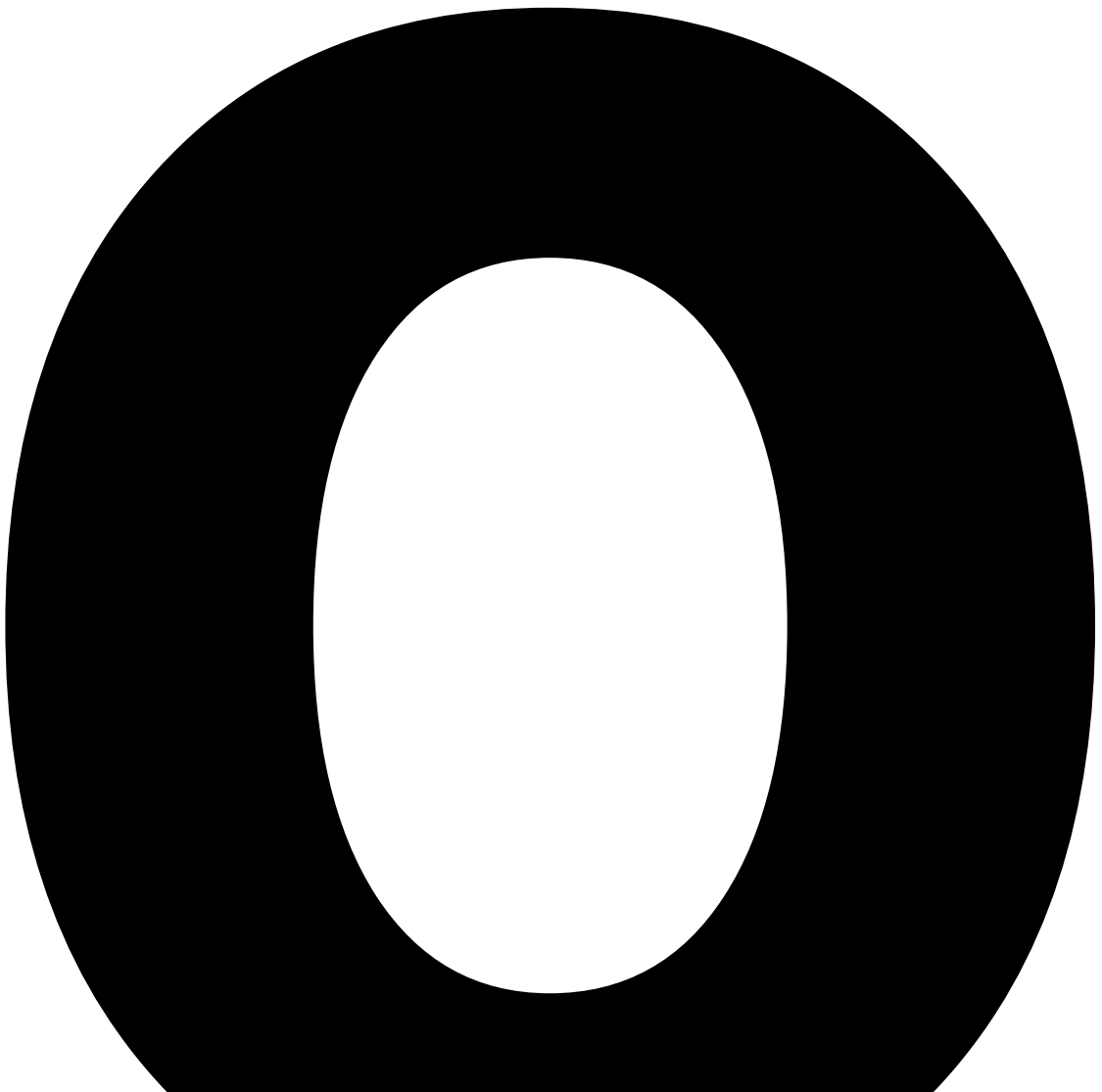




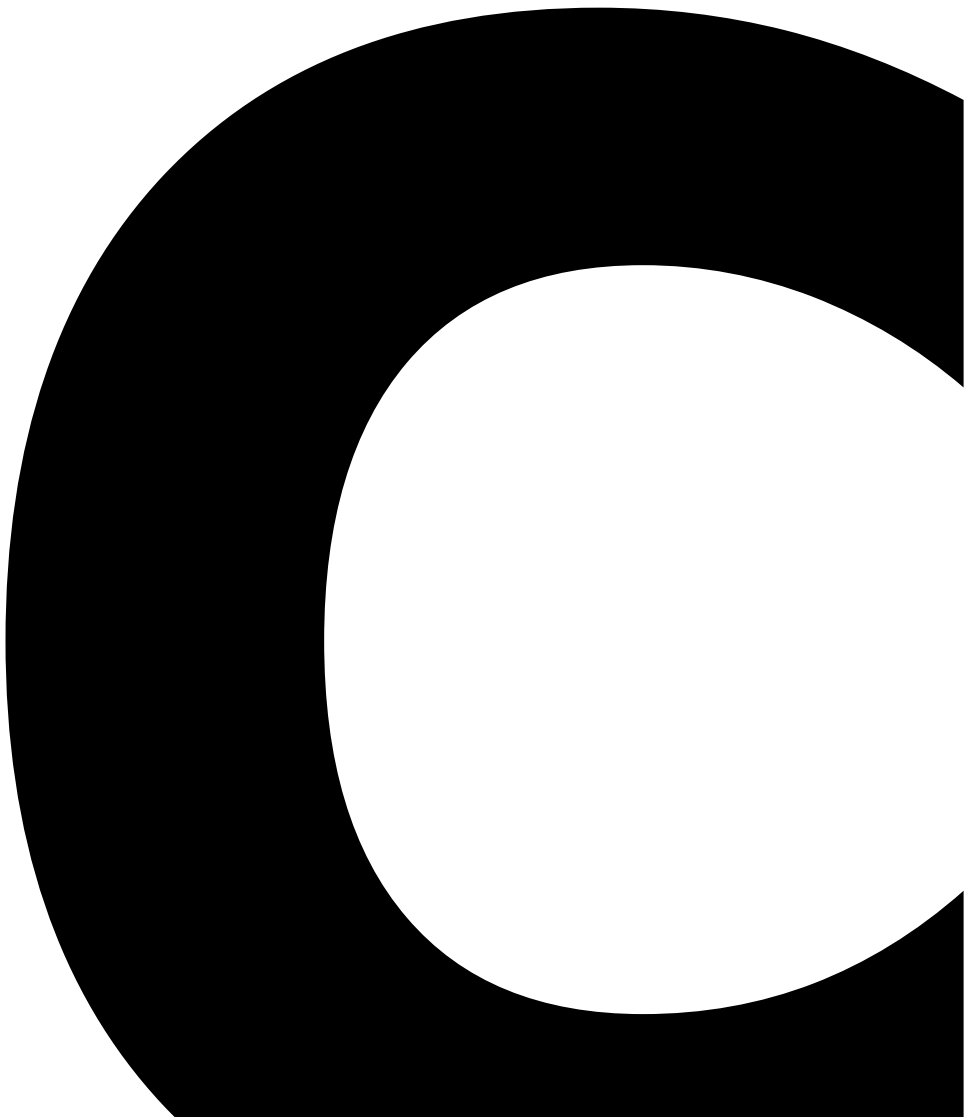




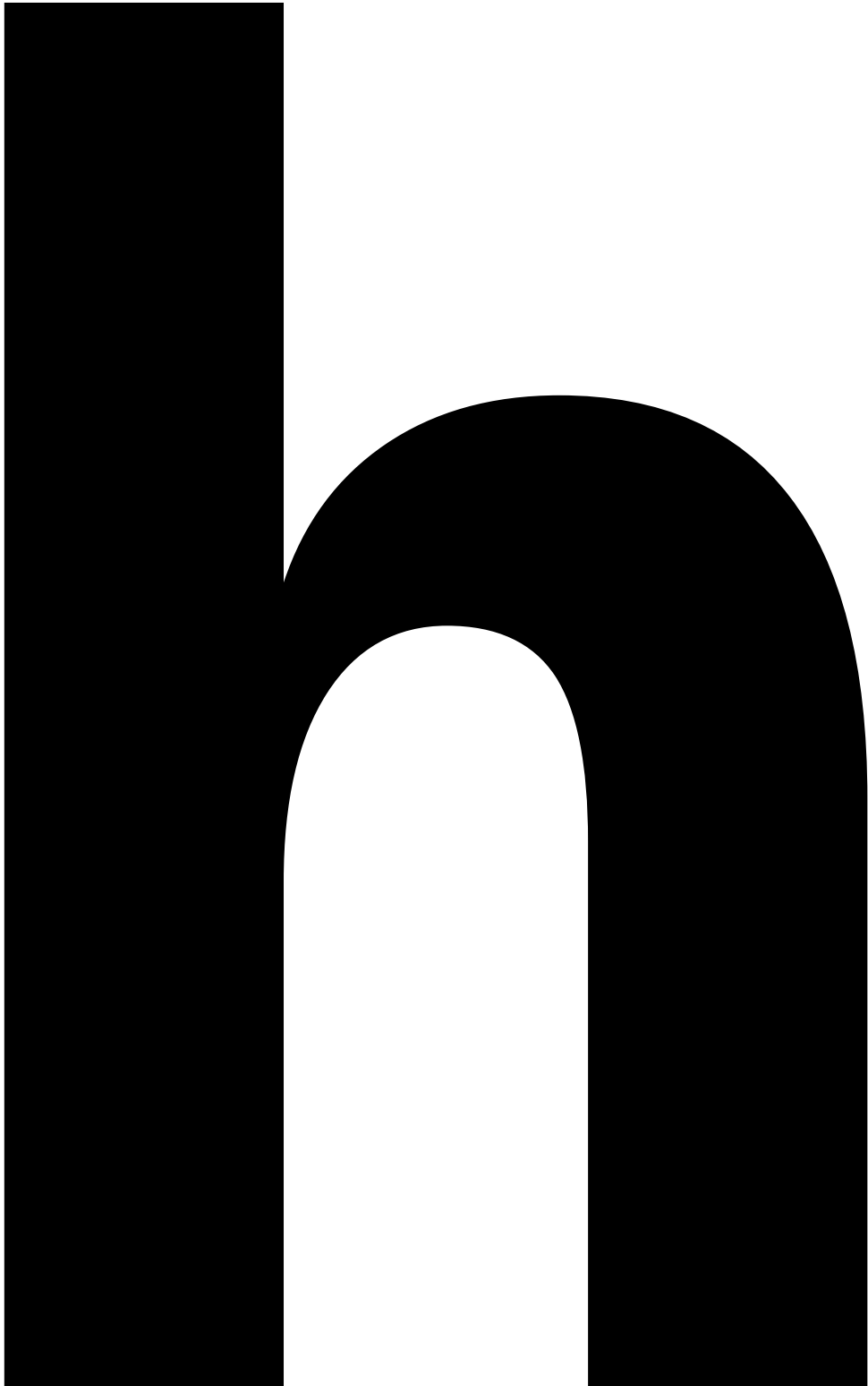




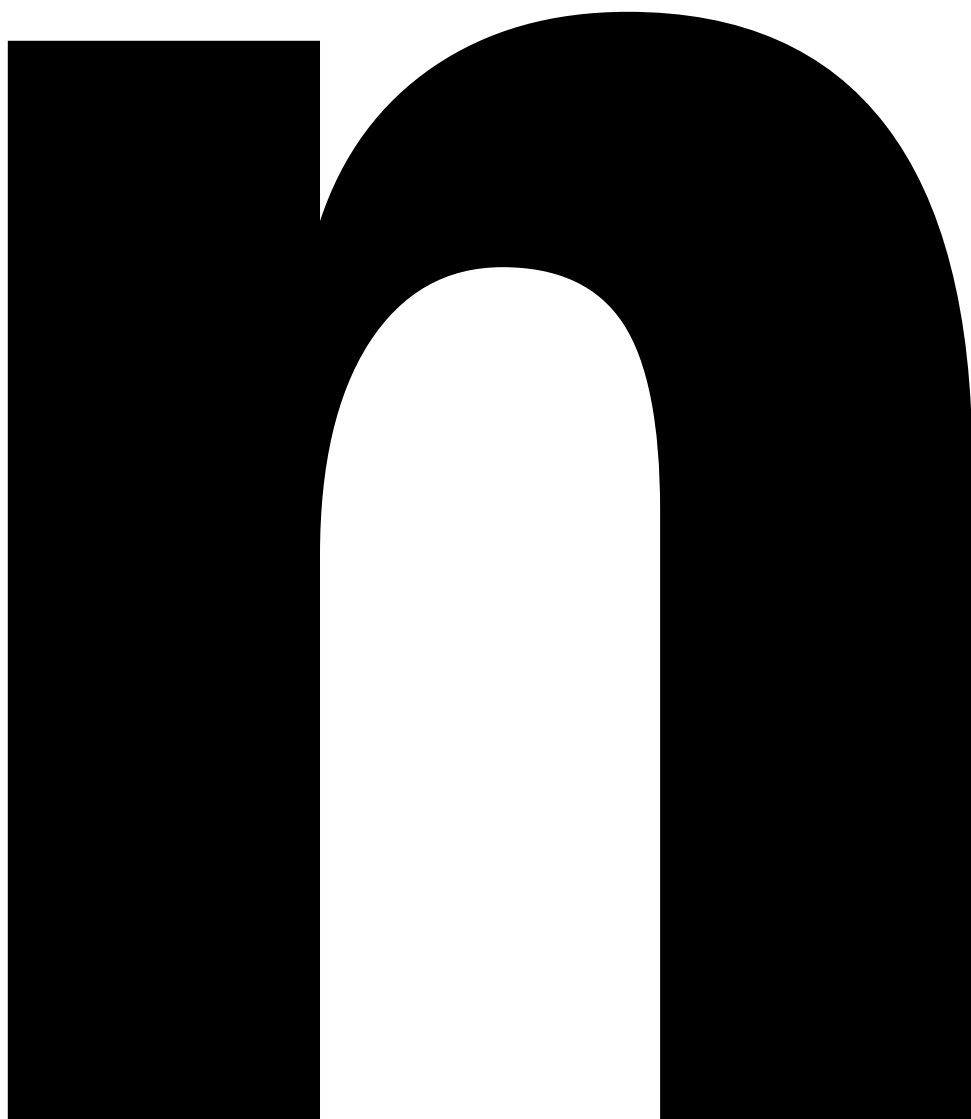






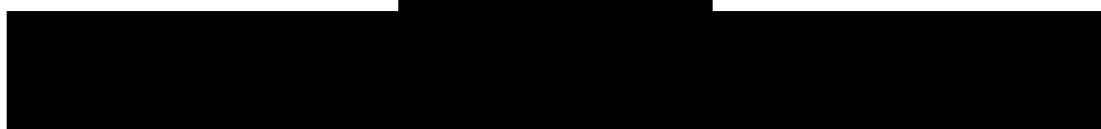
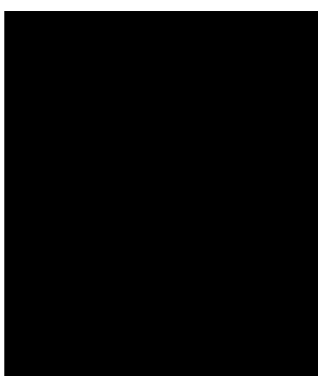








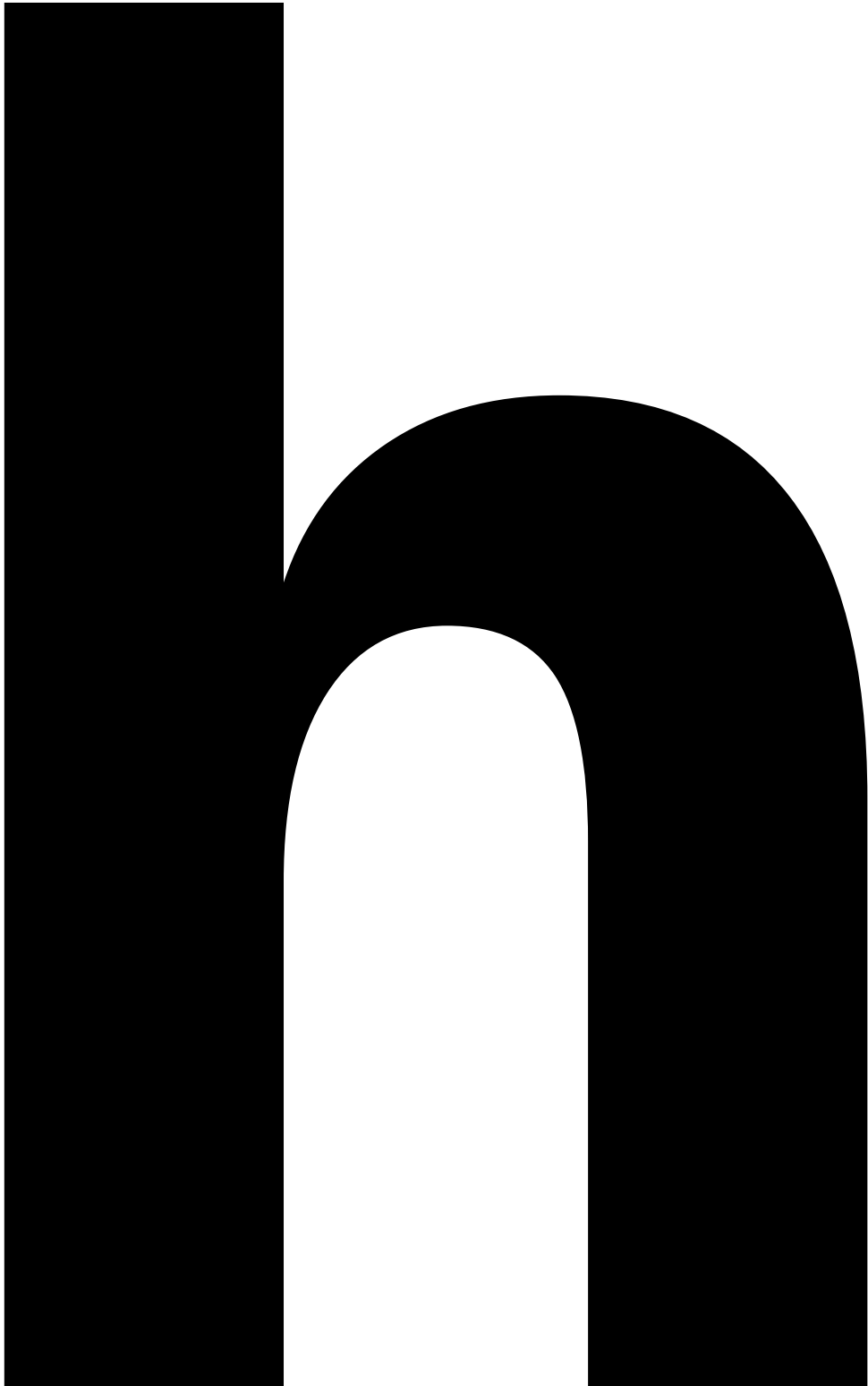




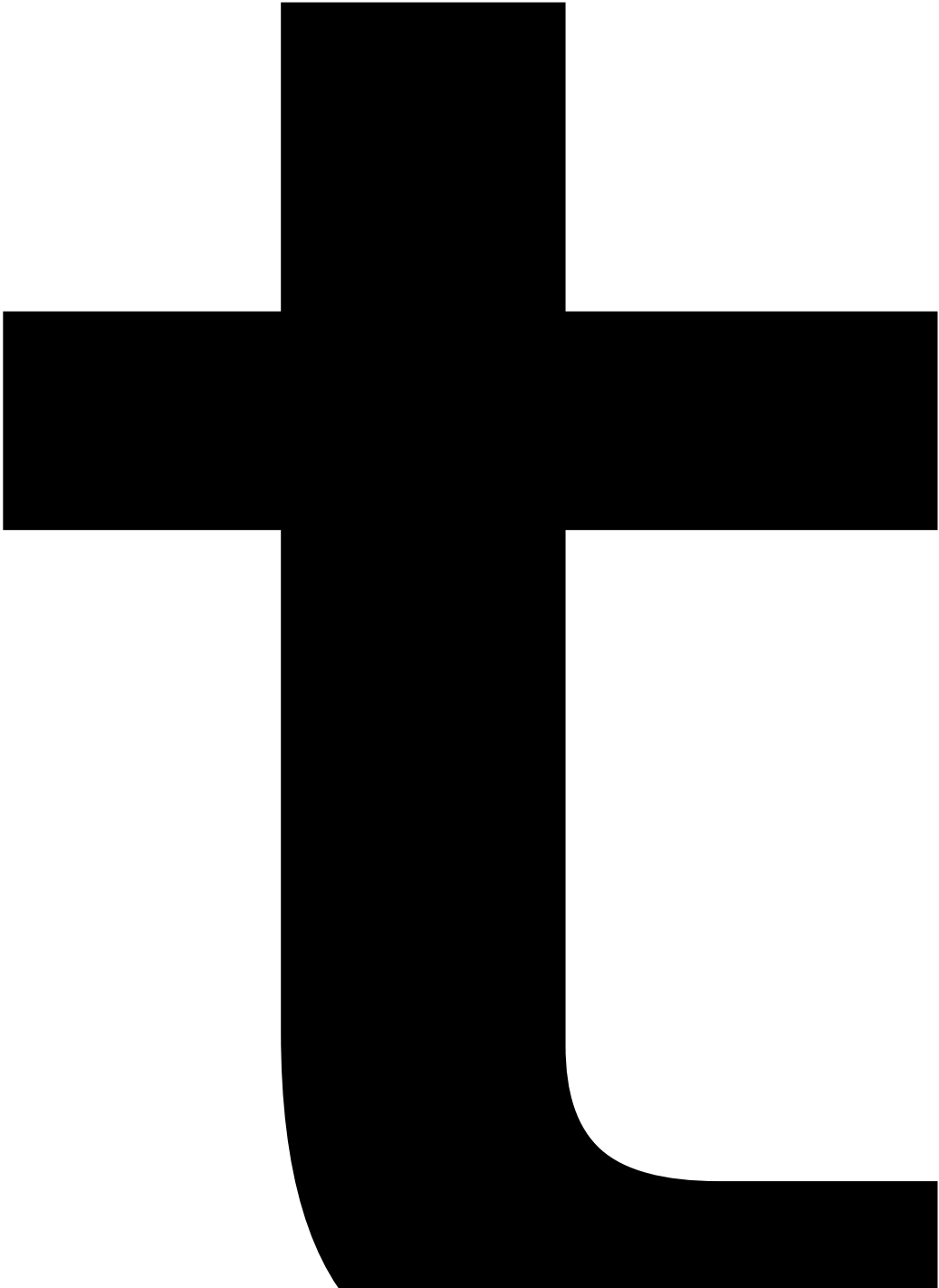
















**Q**



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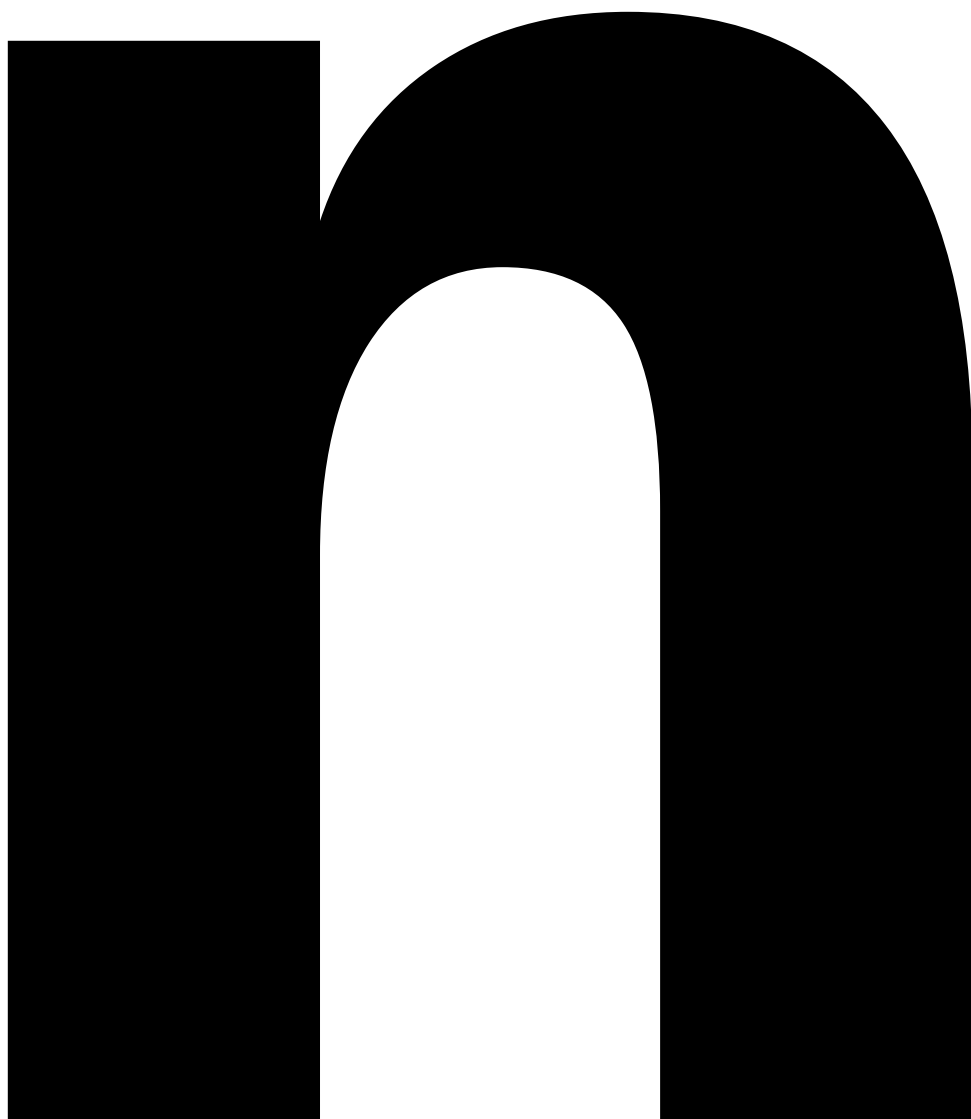


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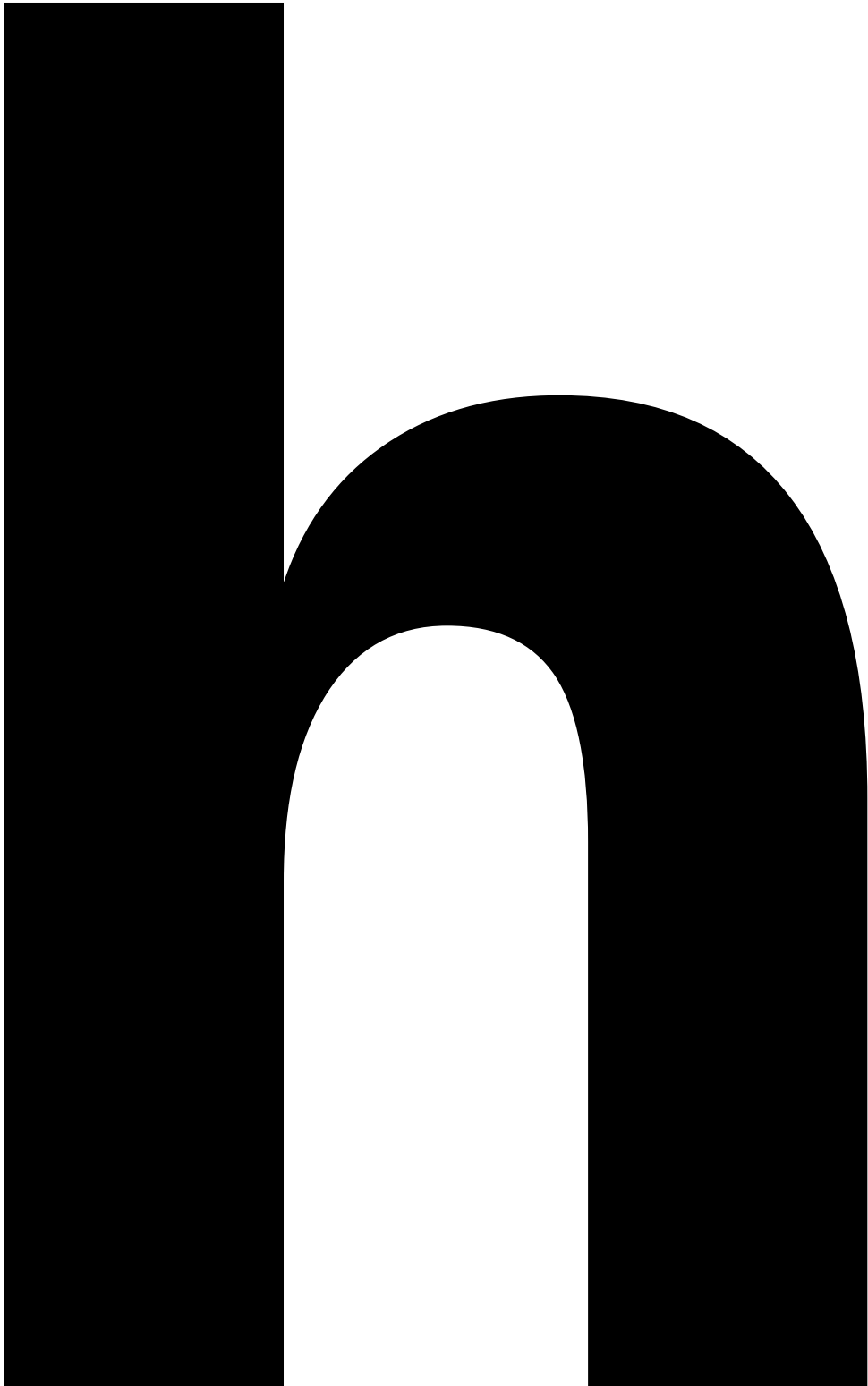


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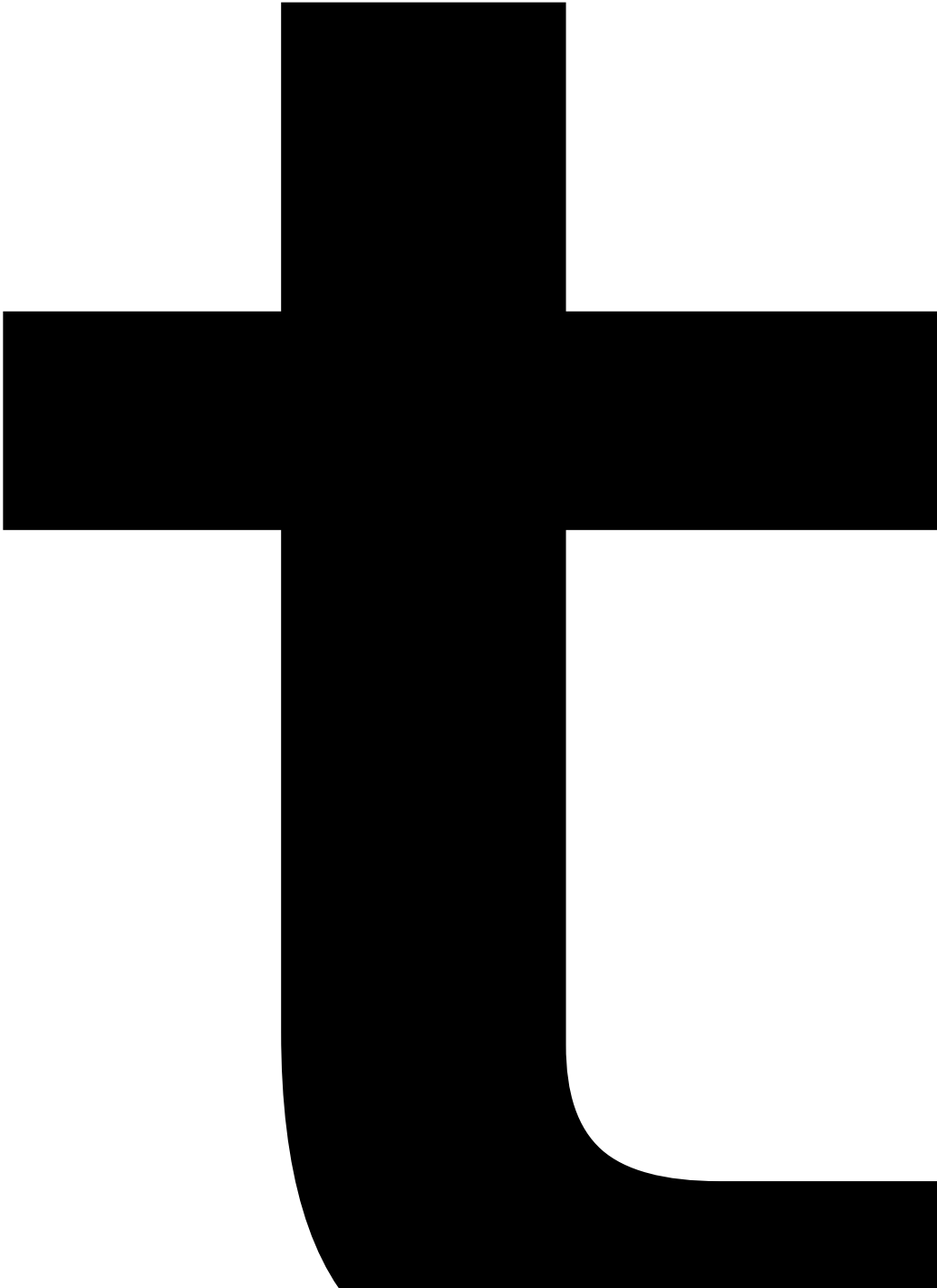




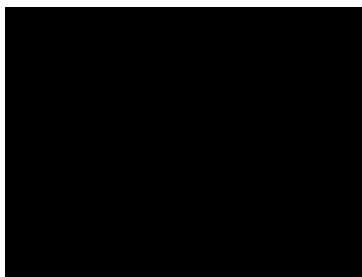


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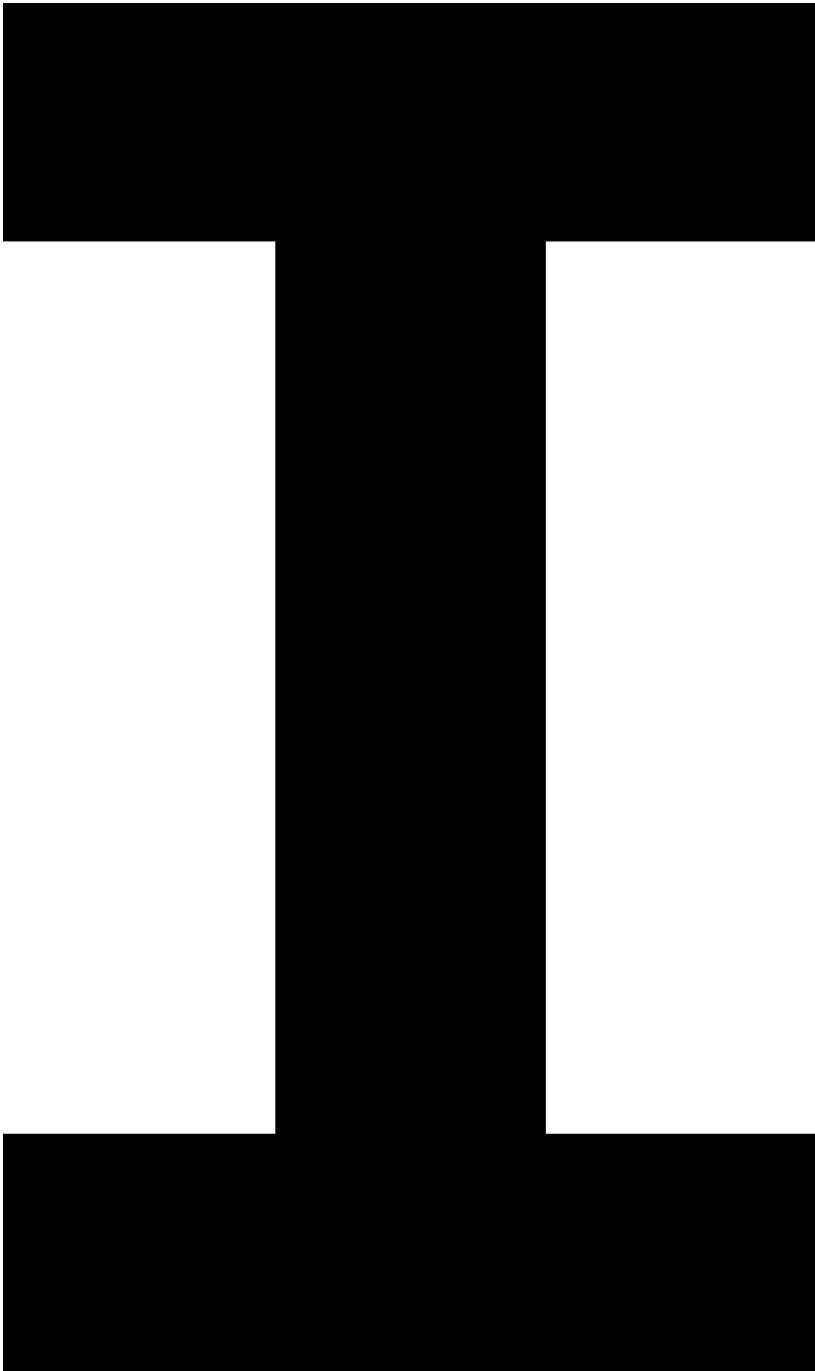














**m**



**J**



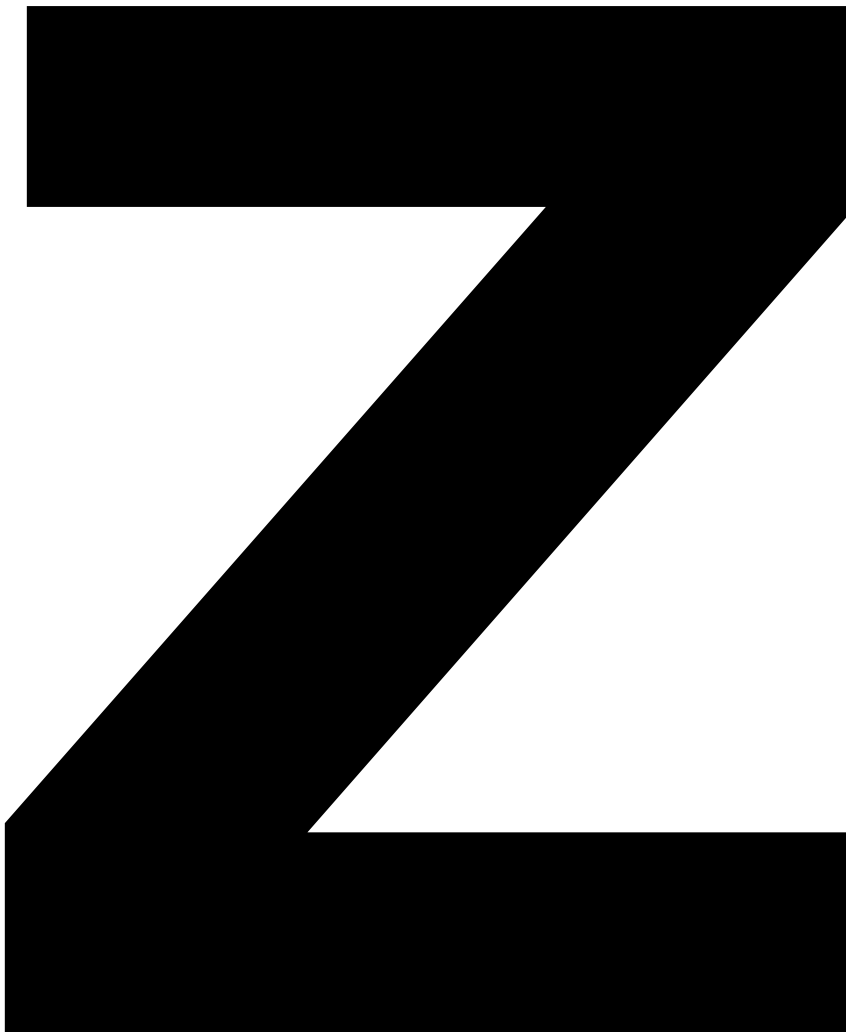
**e**

















**e**





**n**



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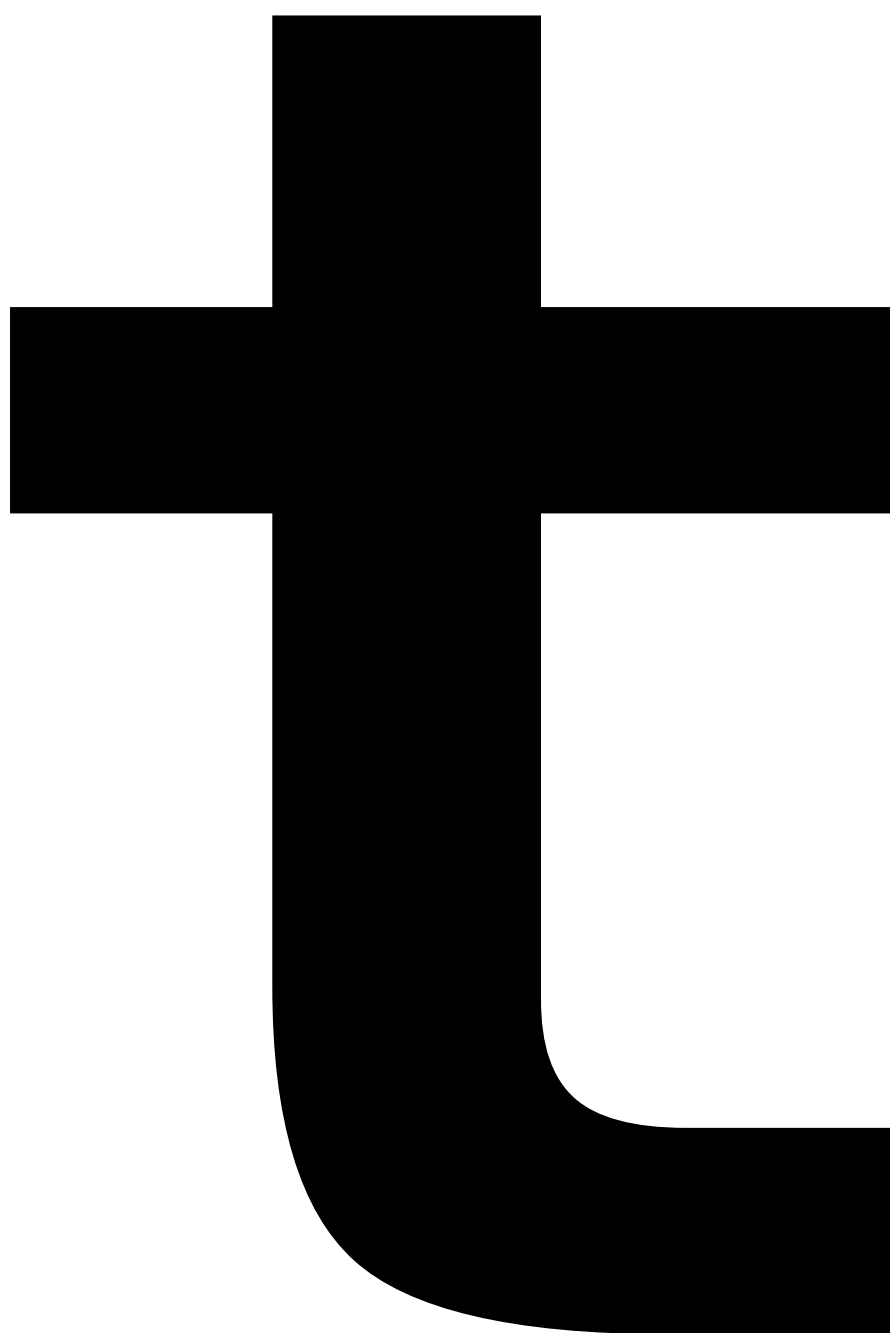


**e**



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**10**



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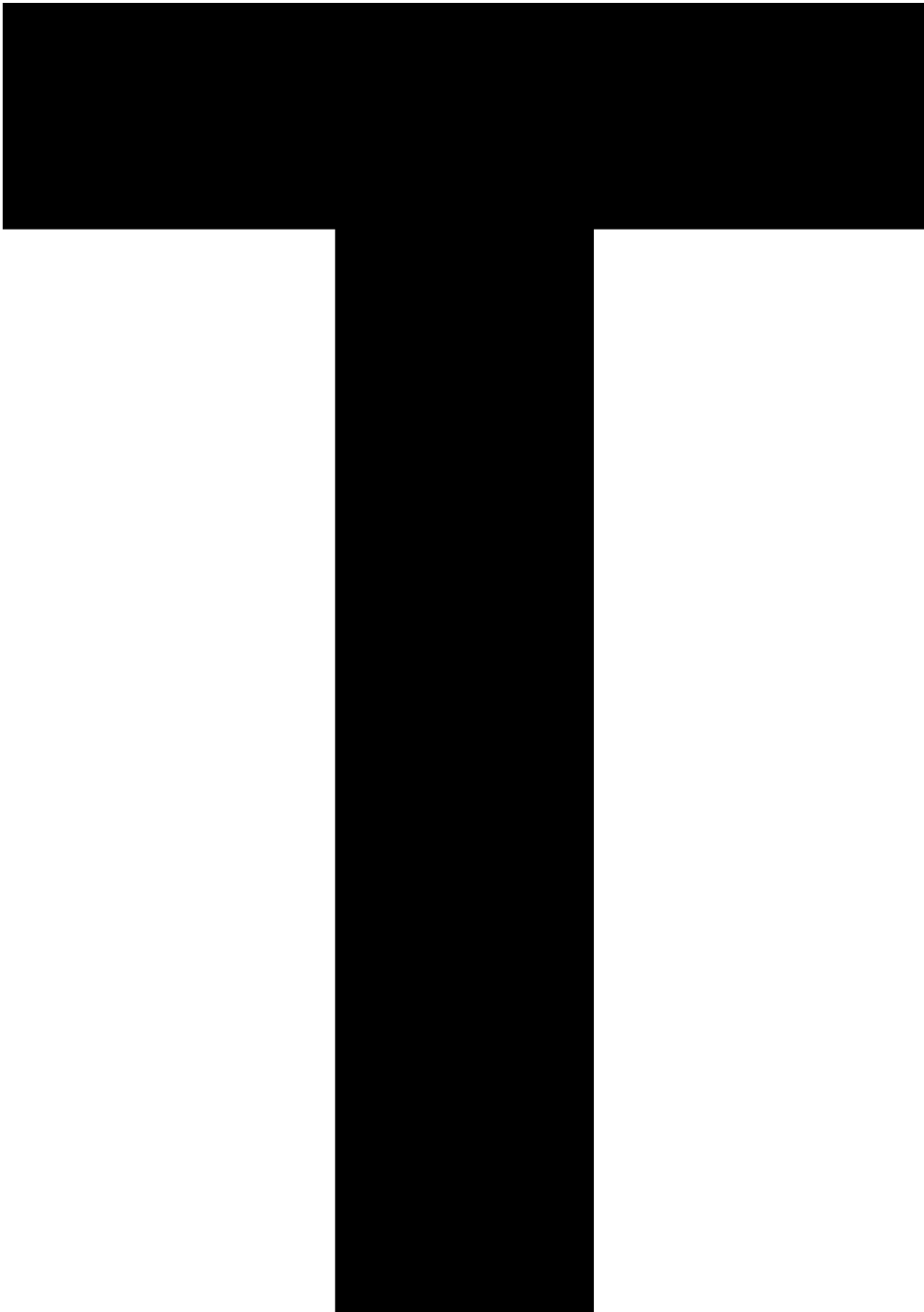






**e**







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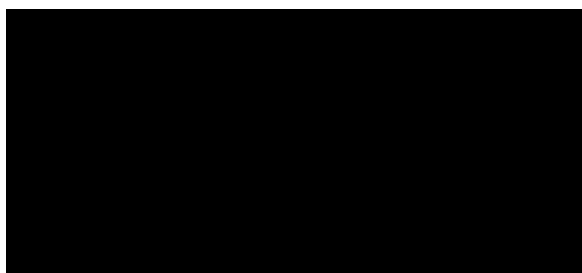






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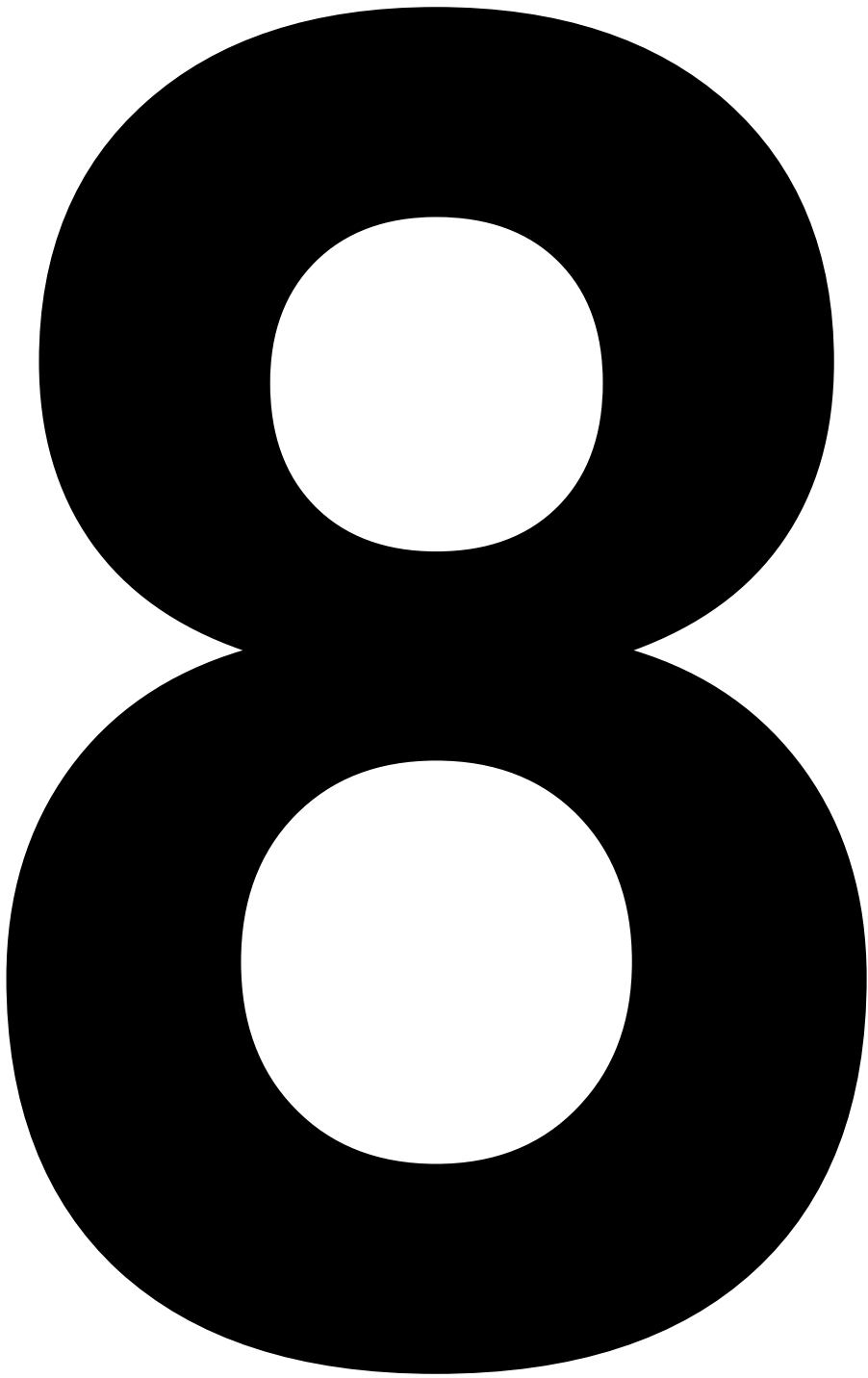




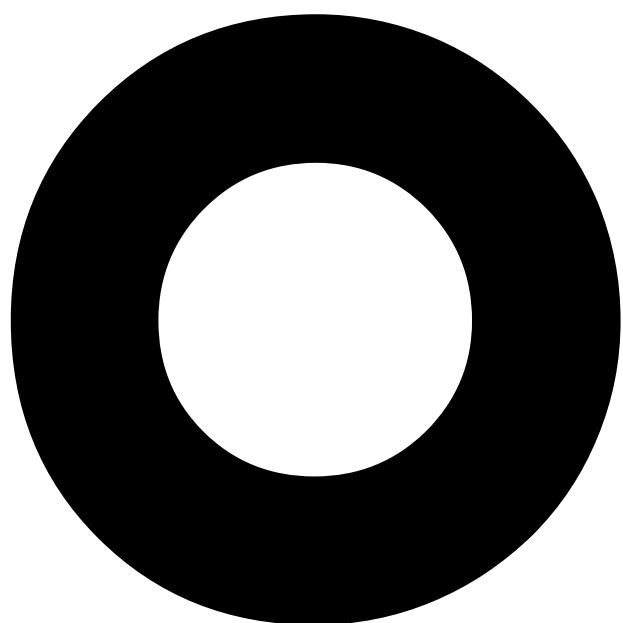














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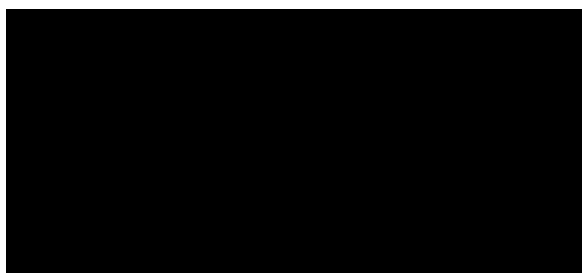
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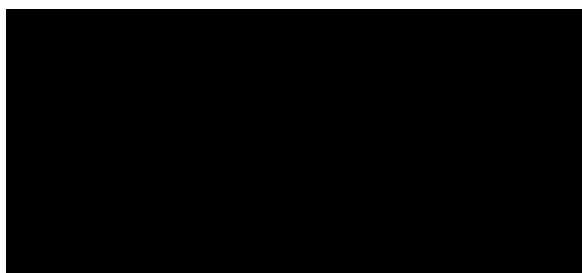
**e**





**r**







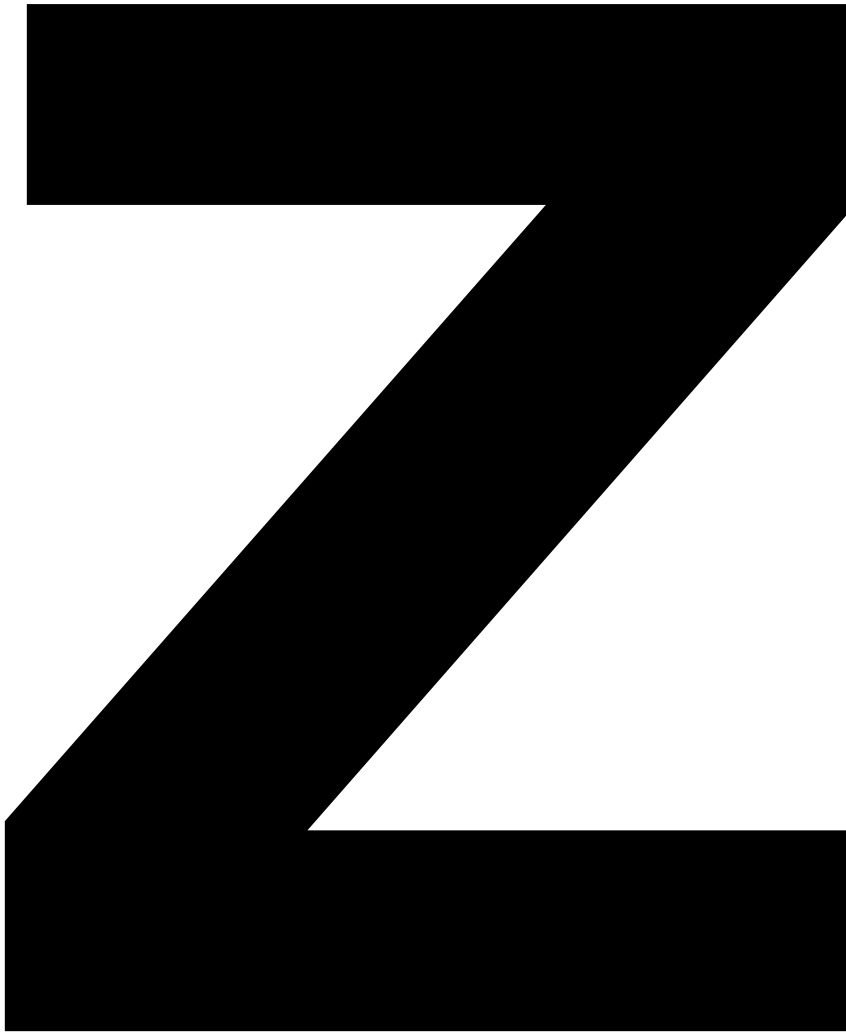
**O**



**S**













**J**



**J**





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**S**





**S**

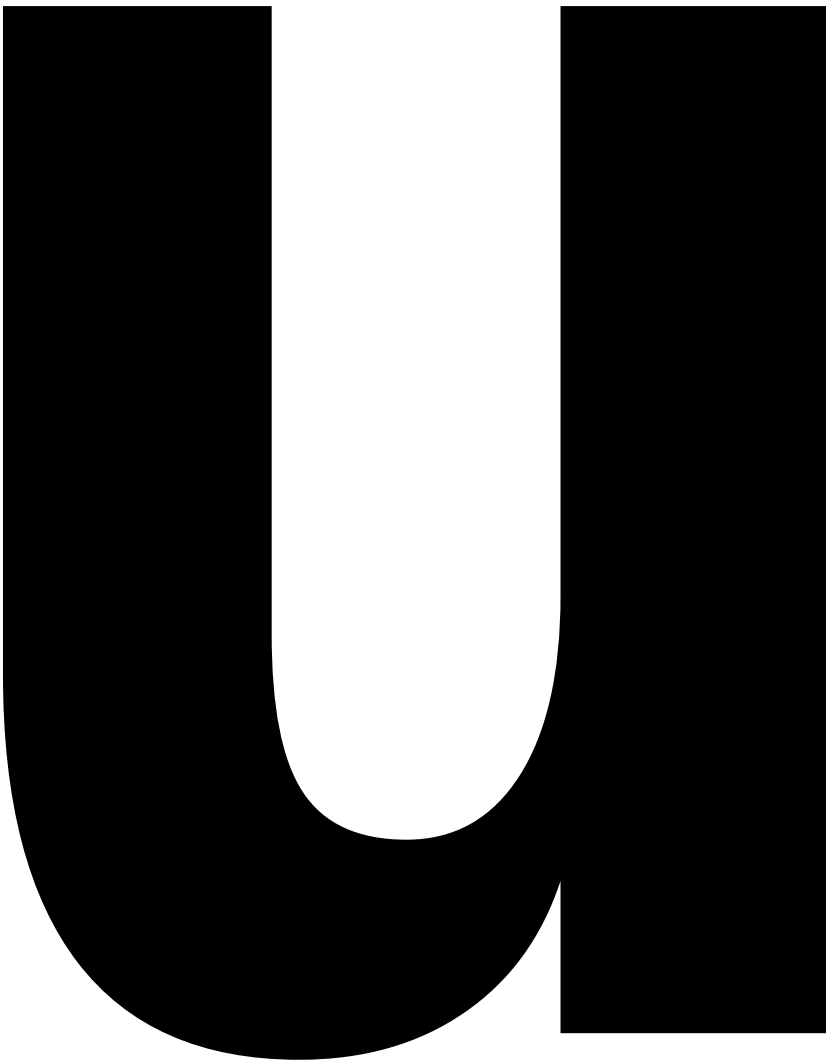


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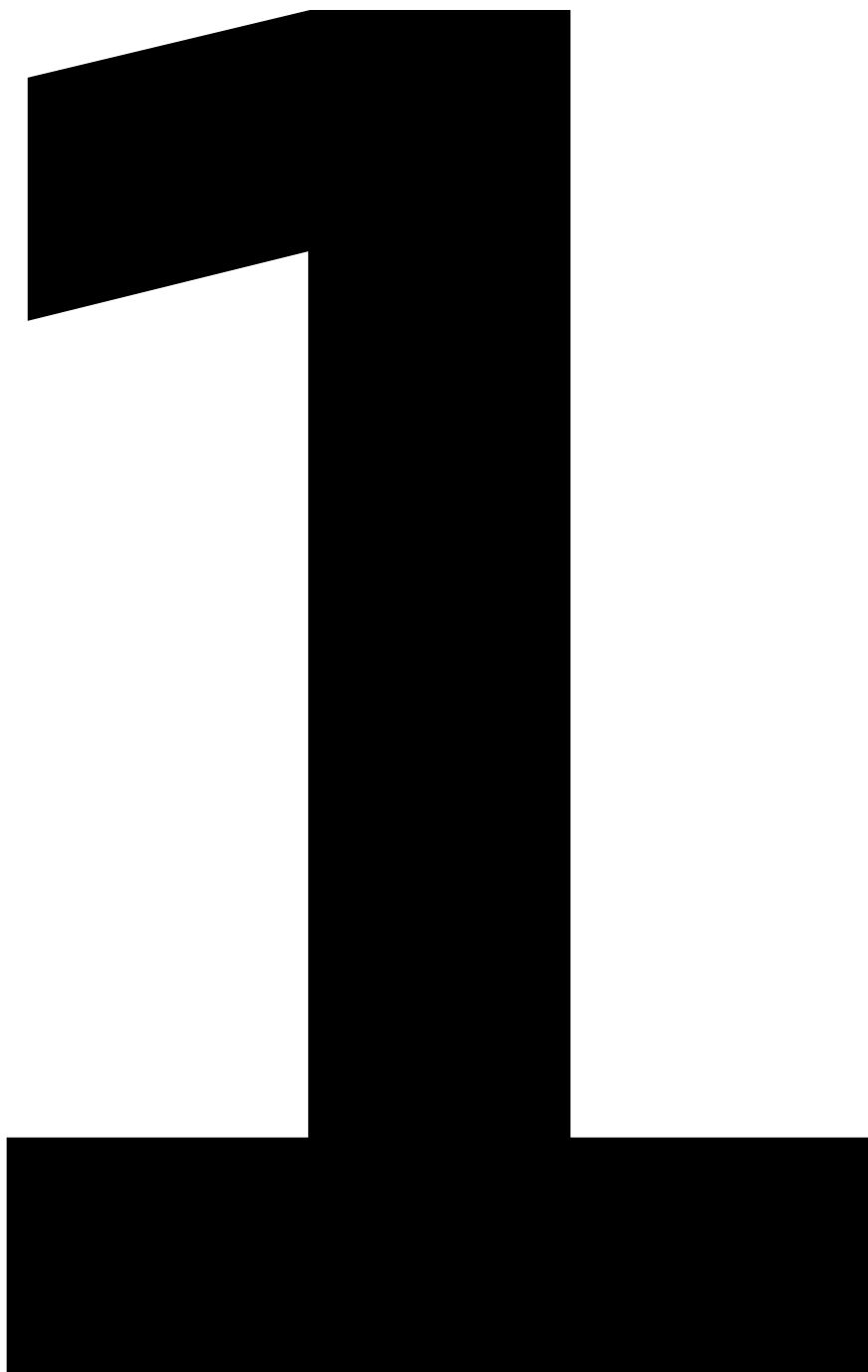
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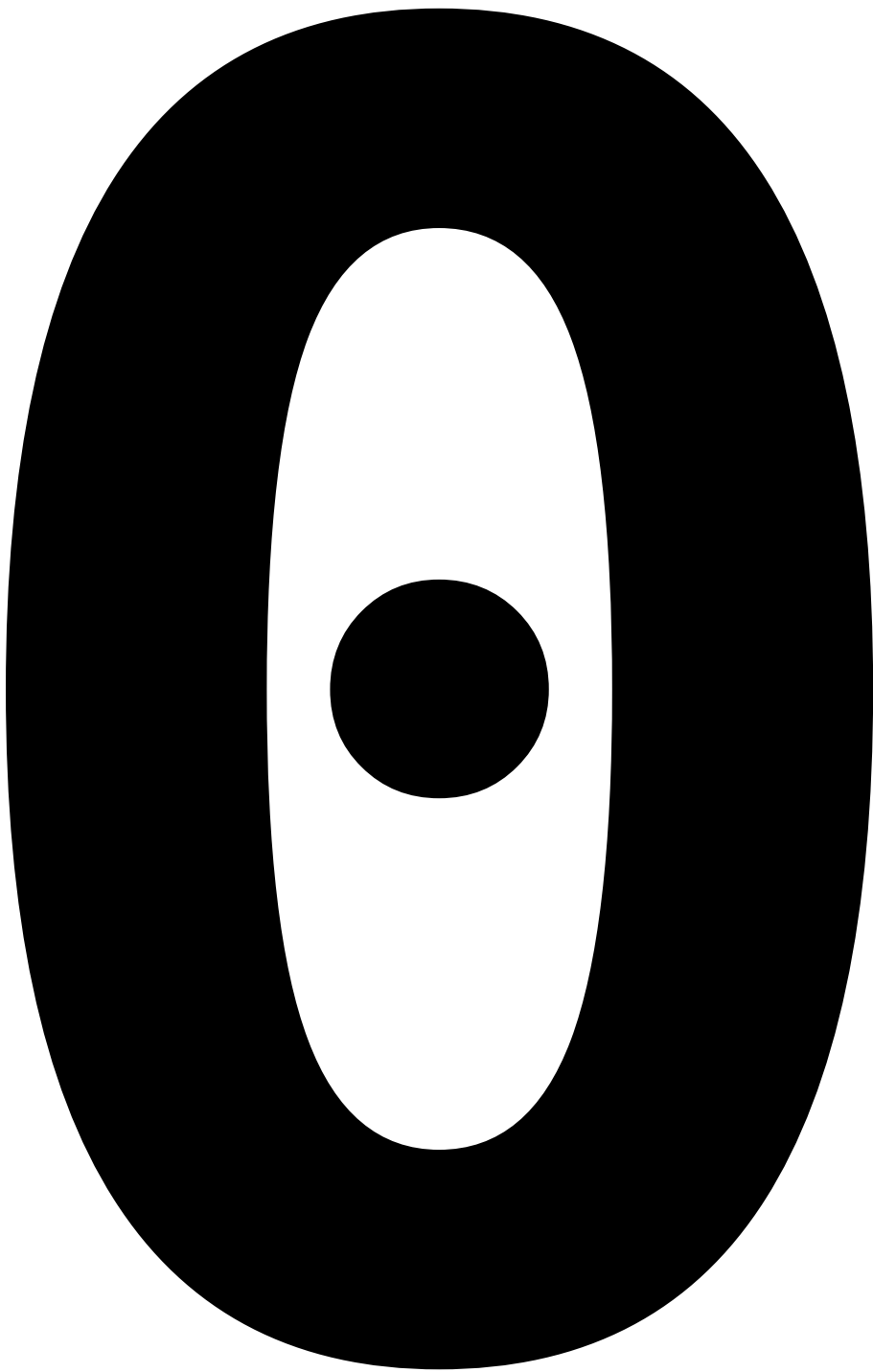


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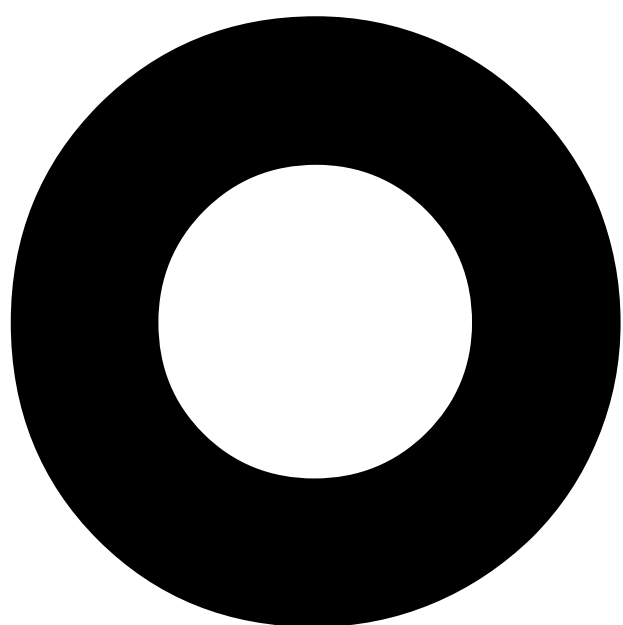
















**C**







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**Q**





**e**



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**5**



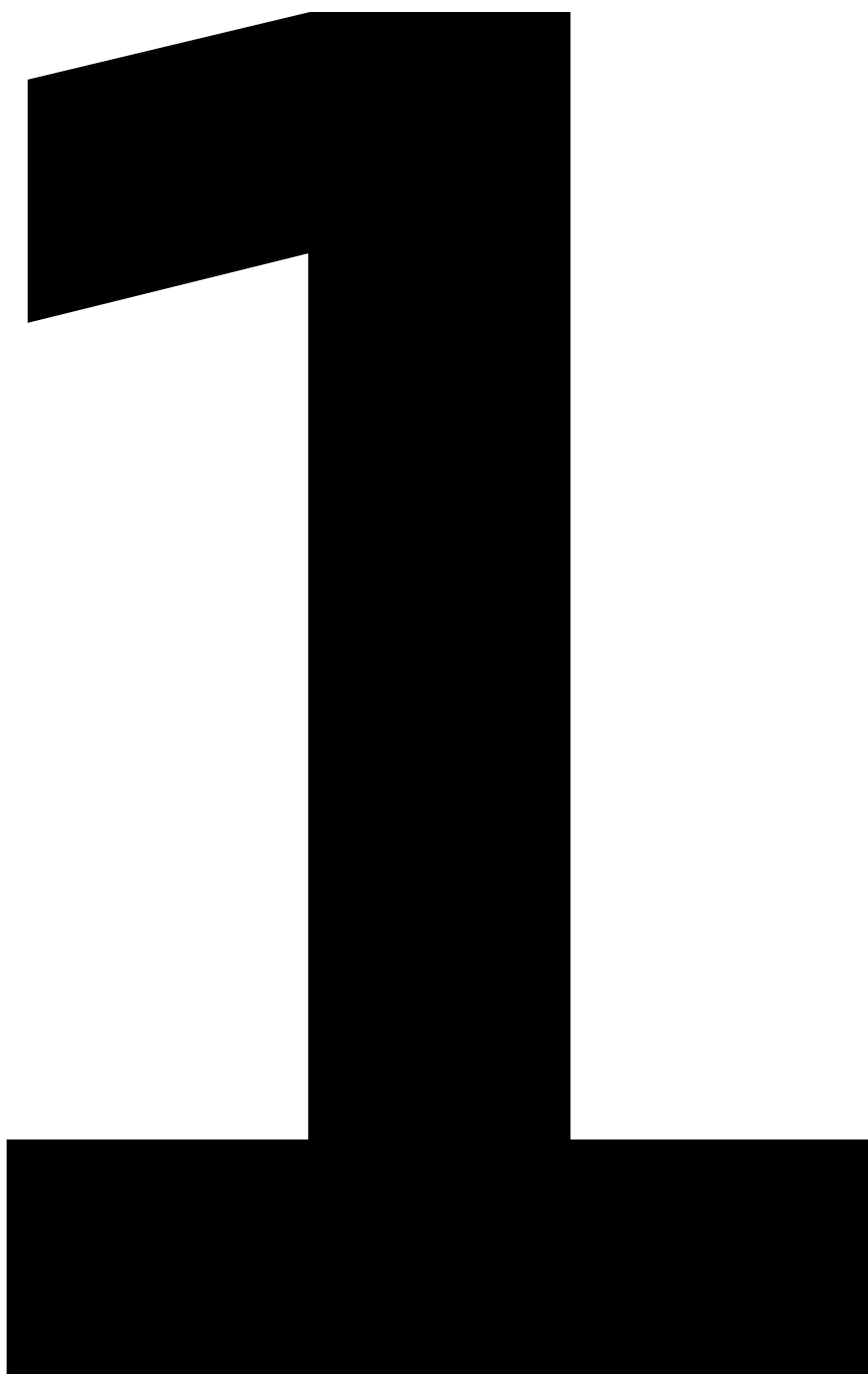
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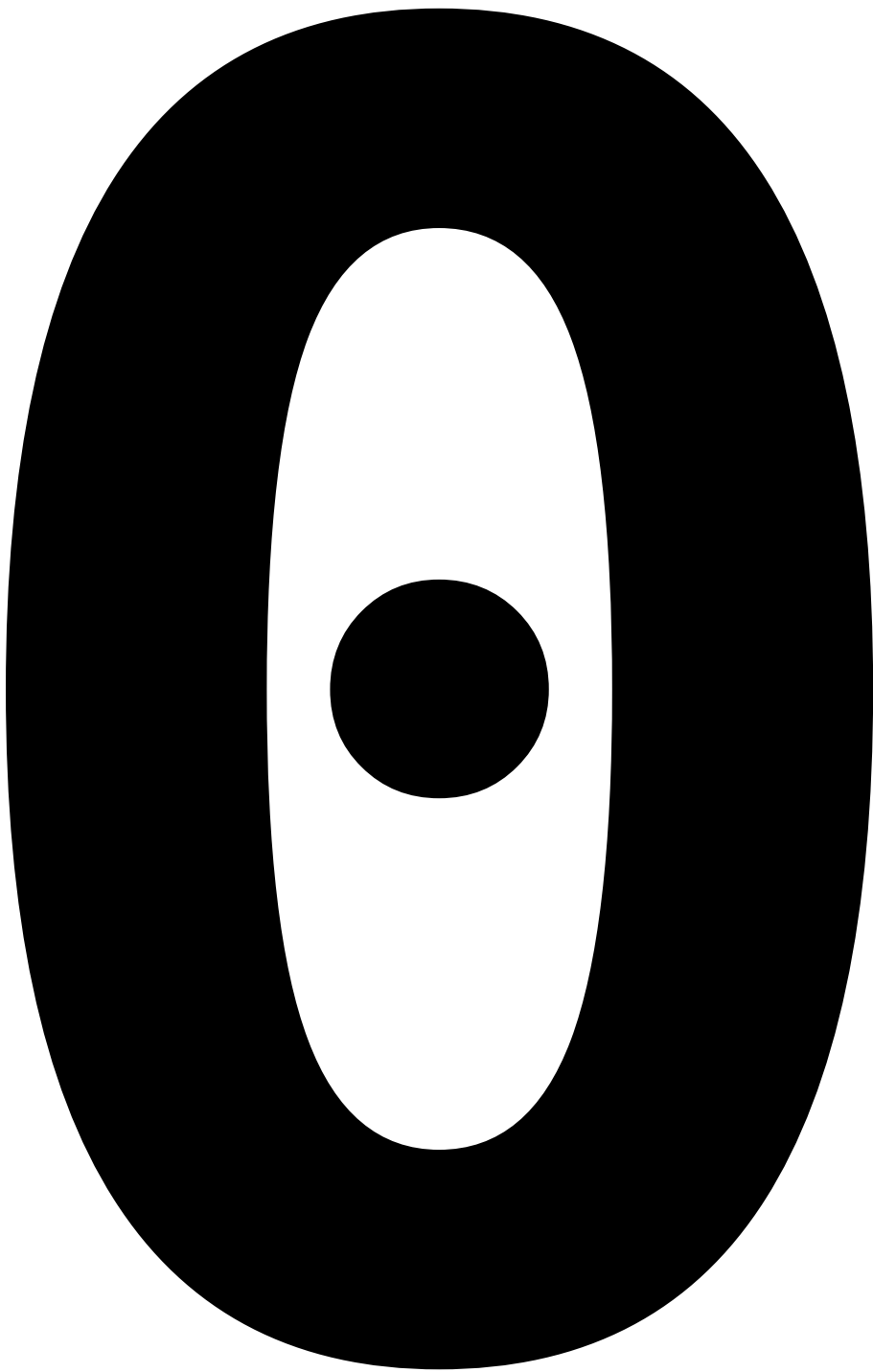


**S**

















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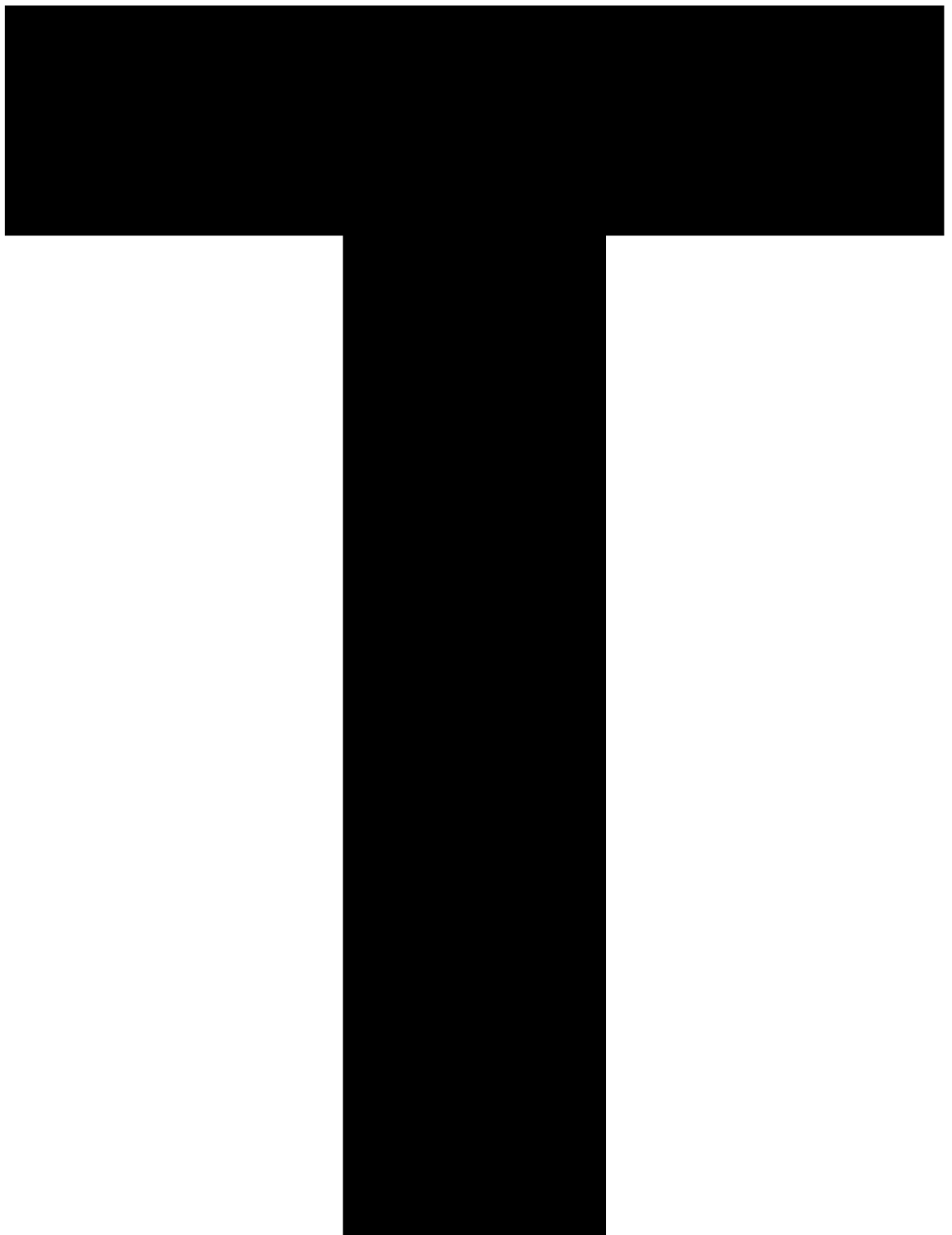




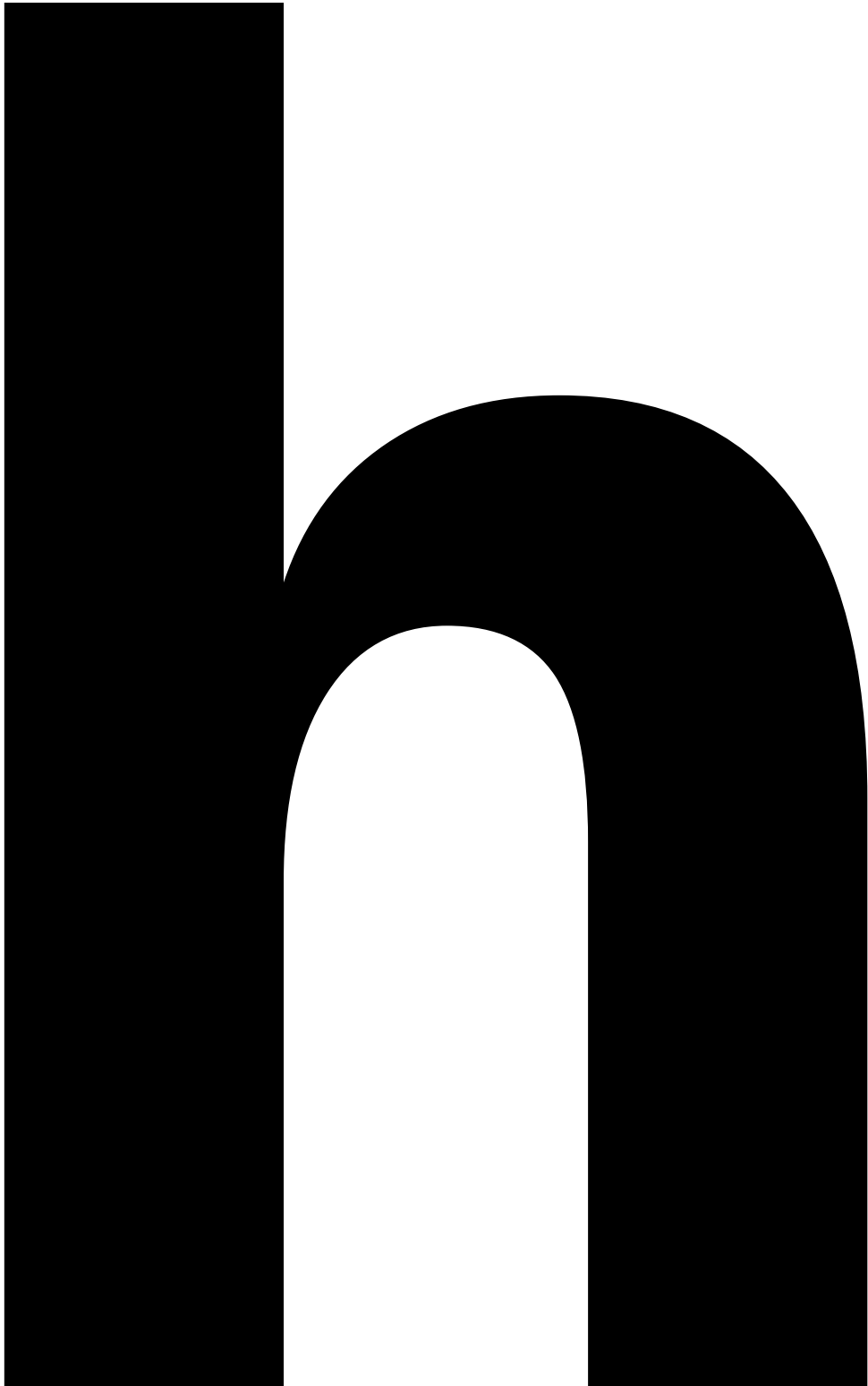














**e**



S



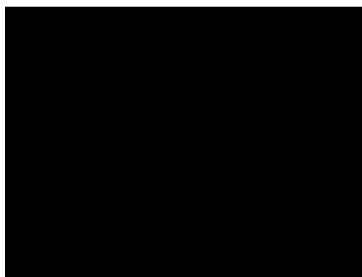
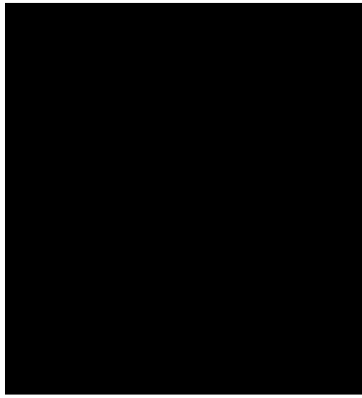


**e**



2







**D**





**e**

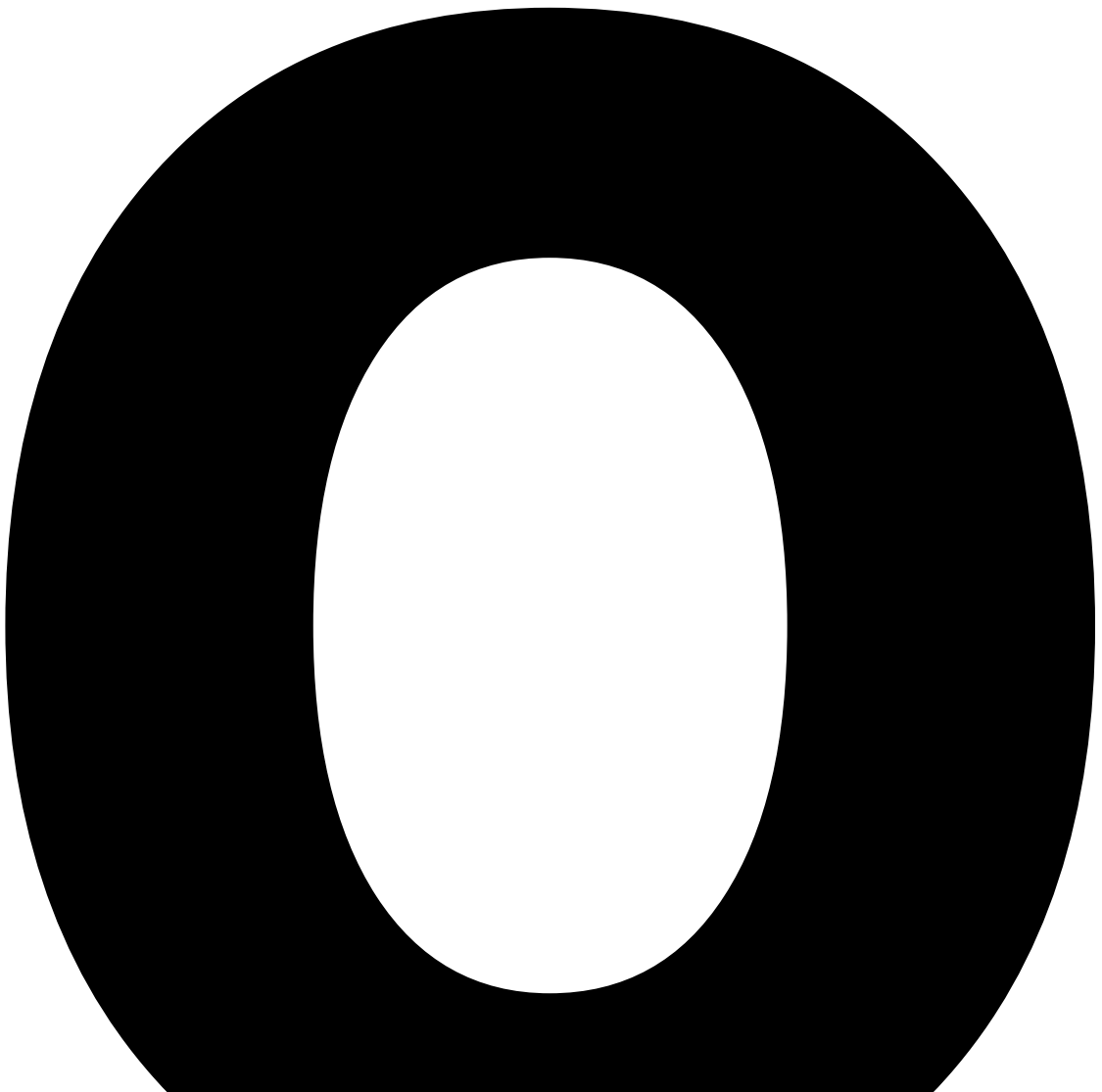






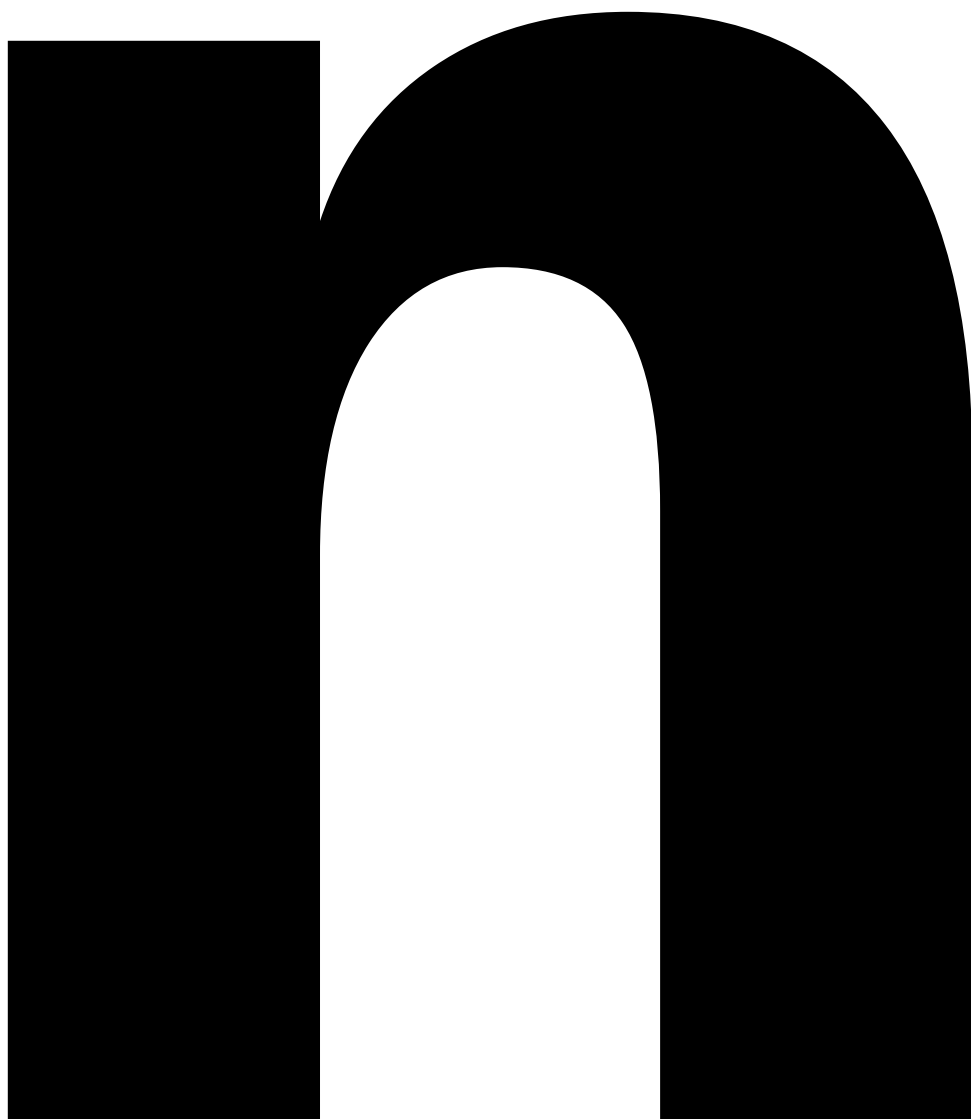
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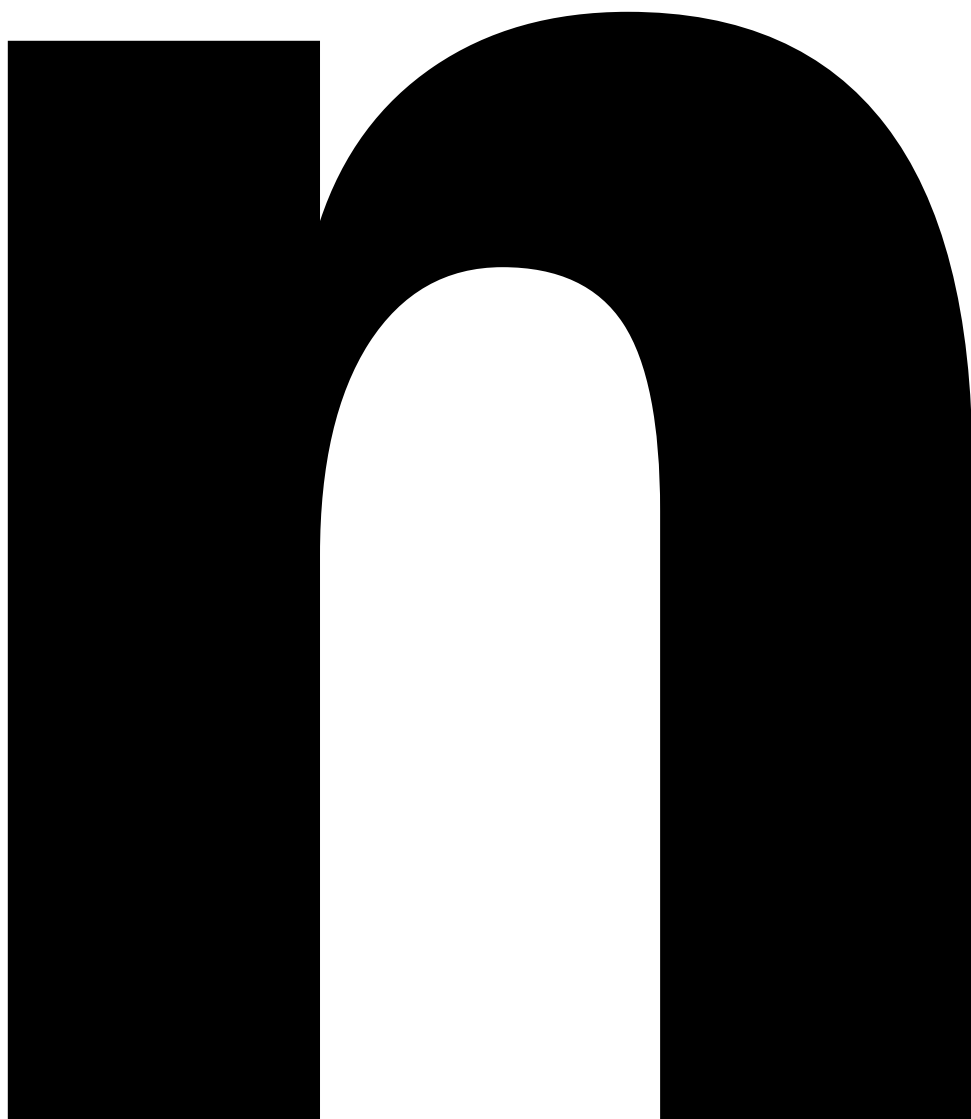














**e**



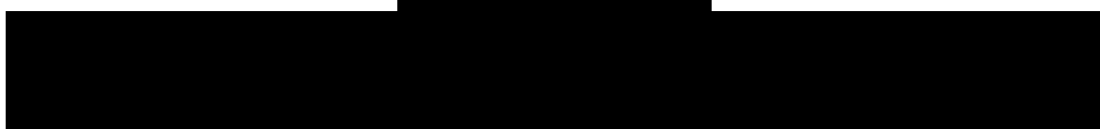
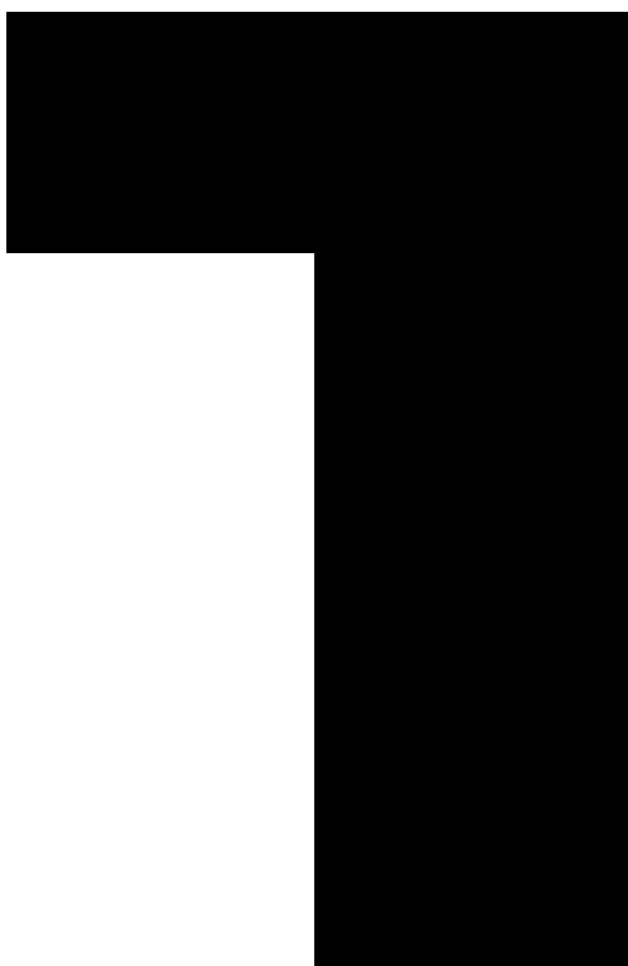
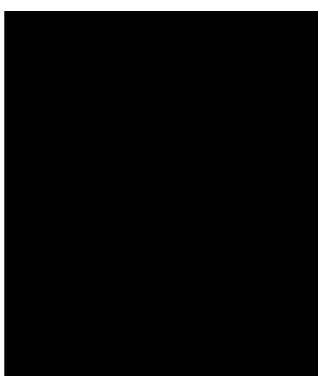
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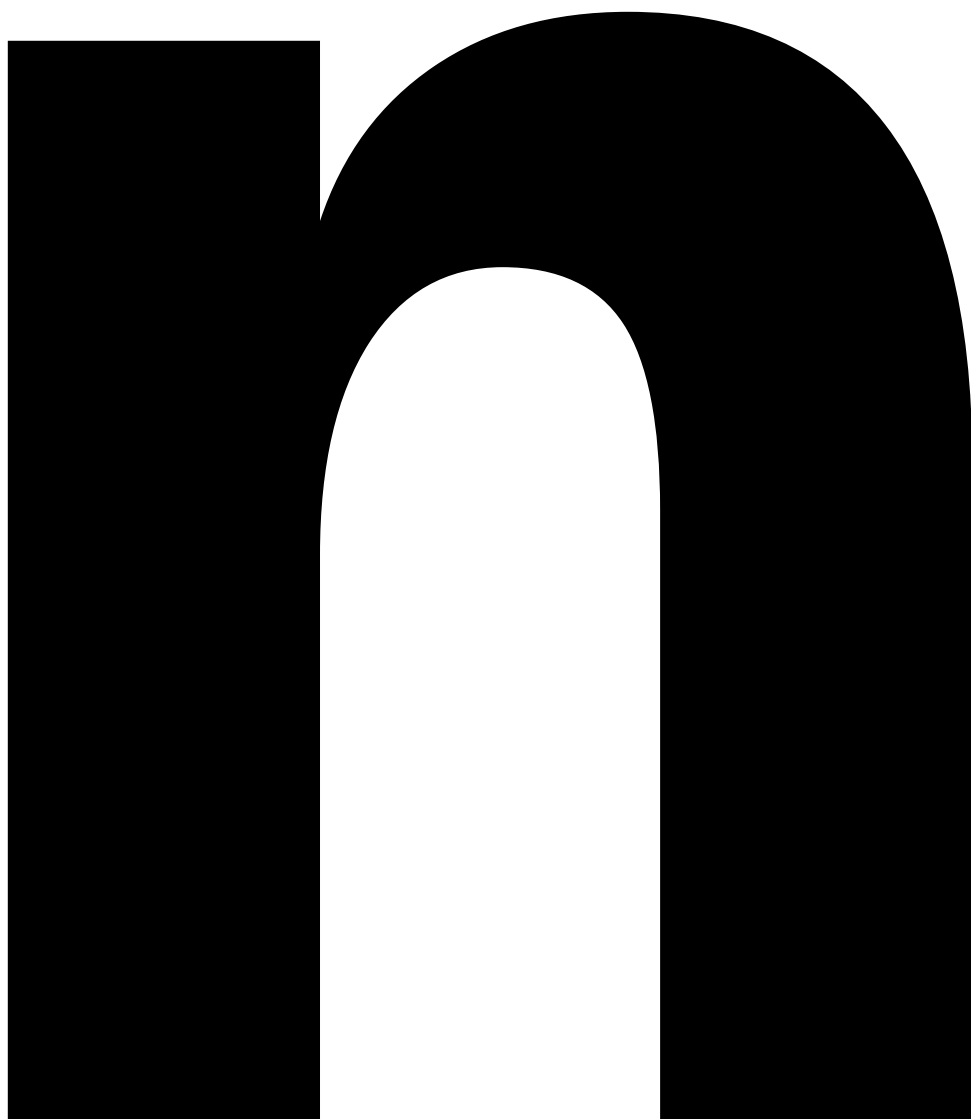


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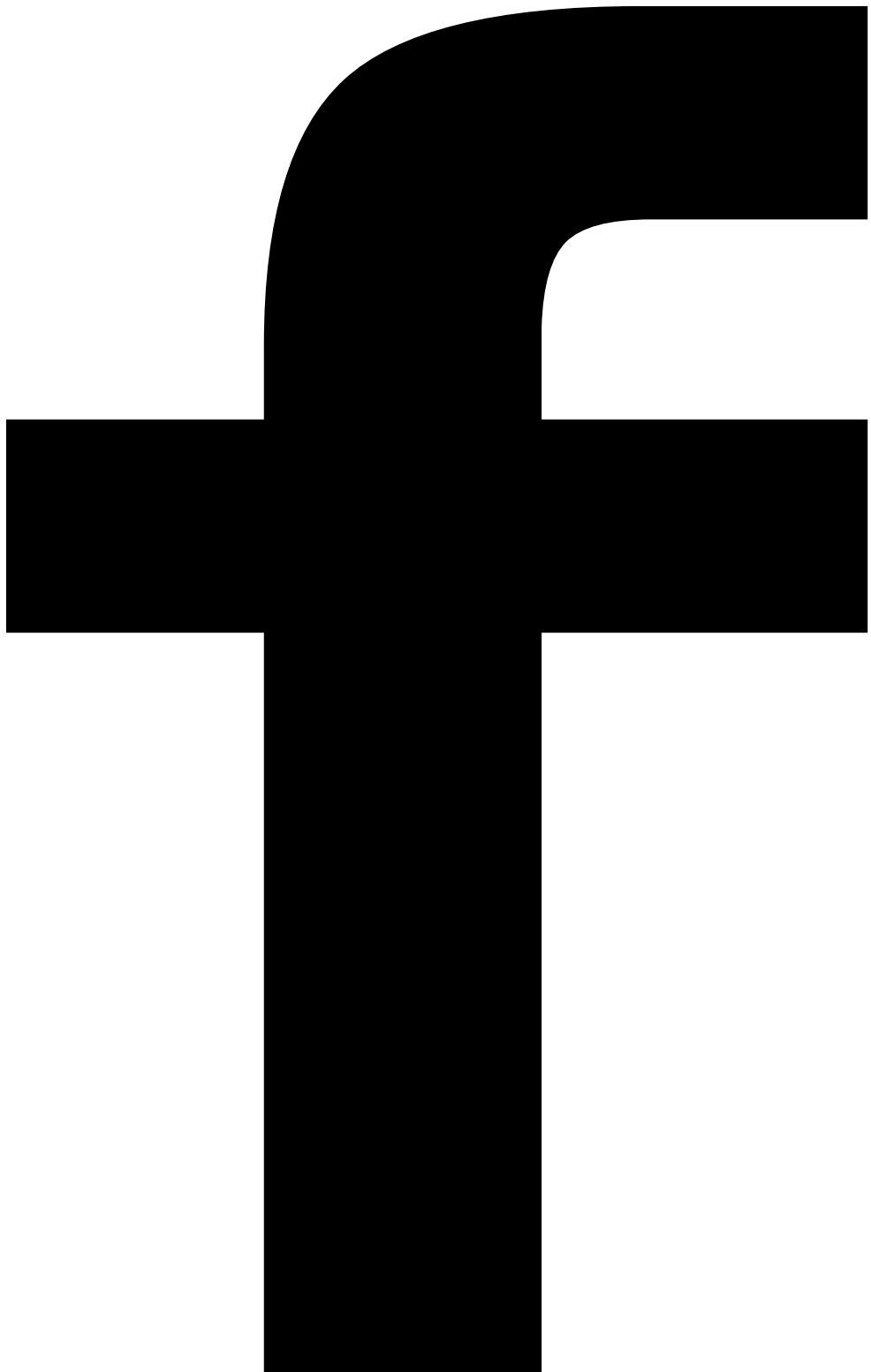
















**J**



U



S



S



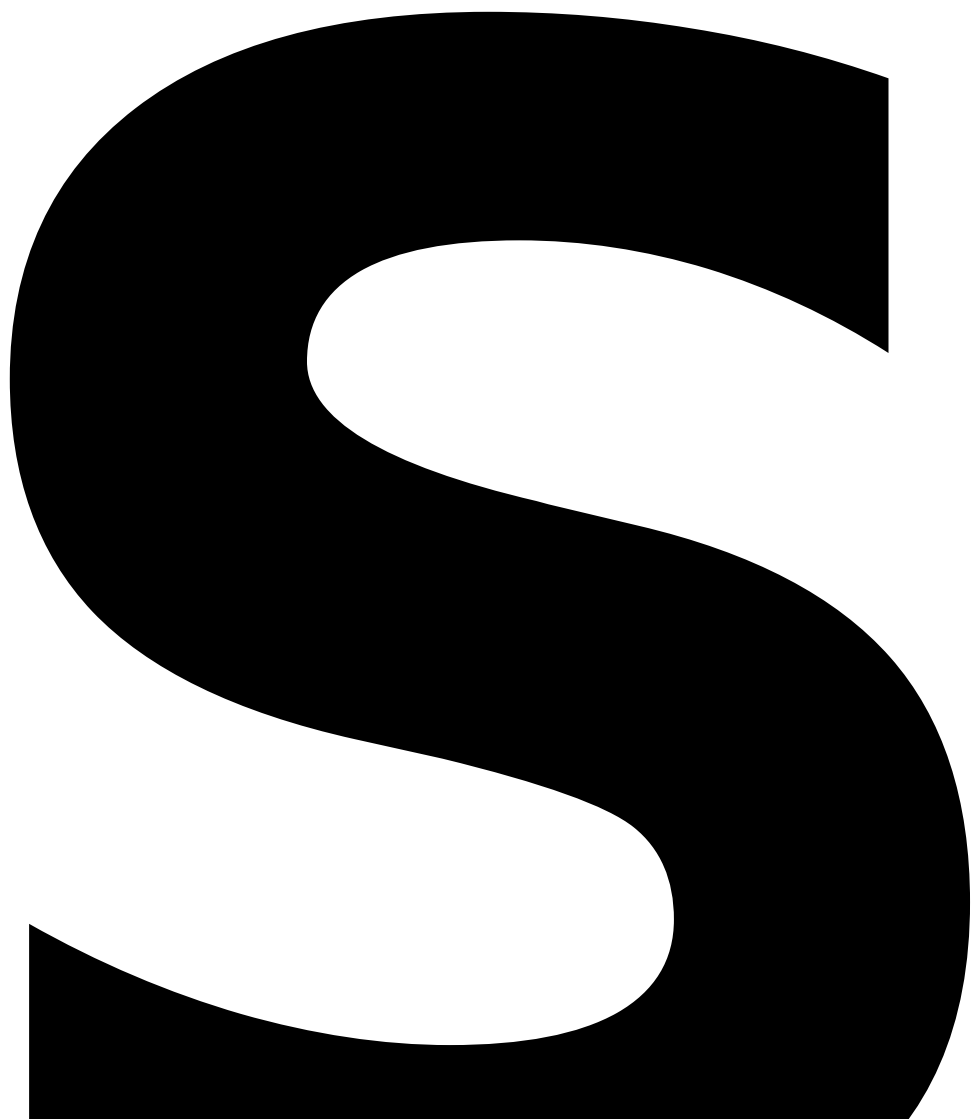


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5



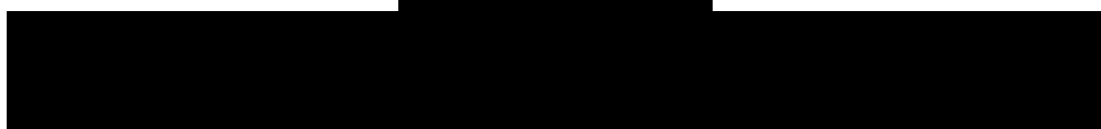
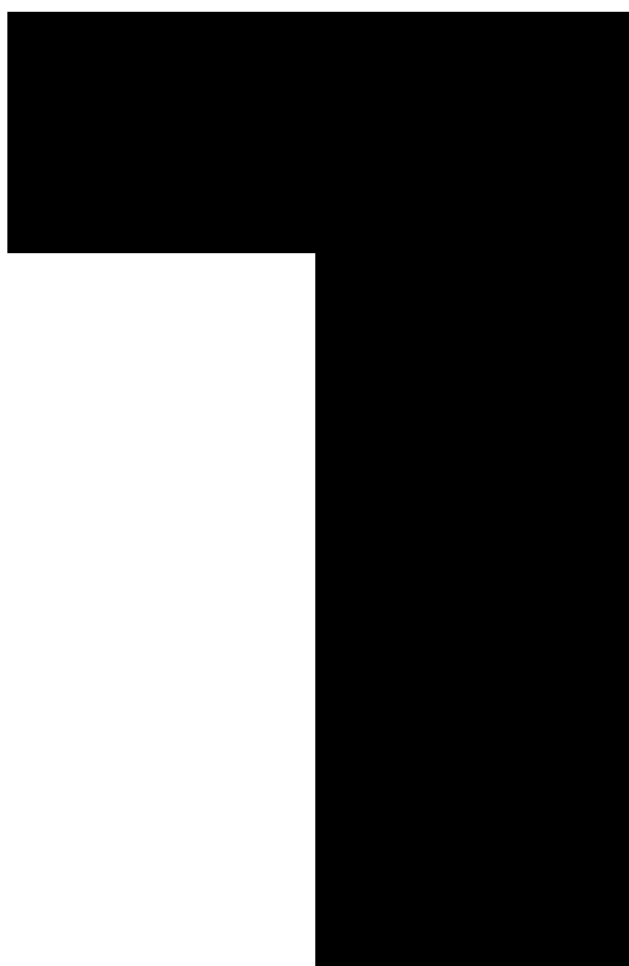
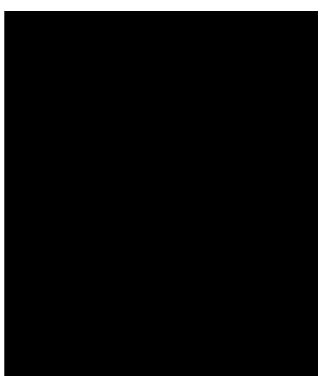




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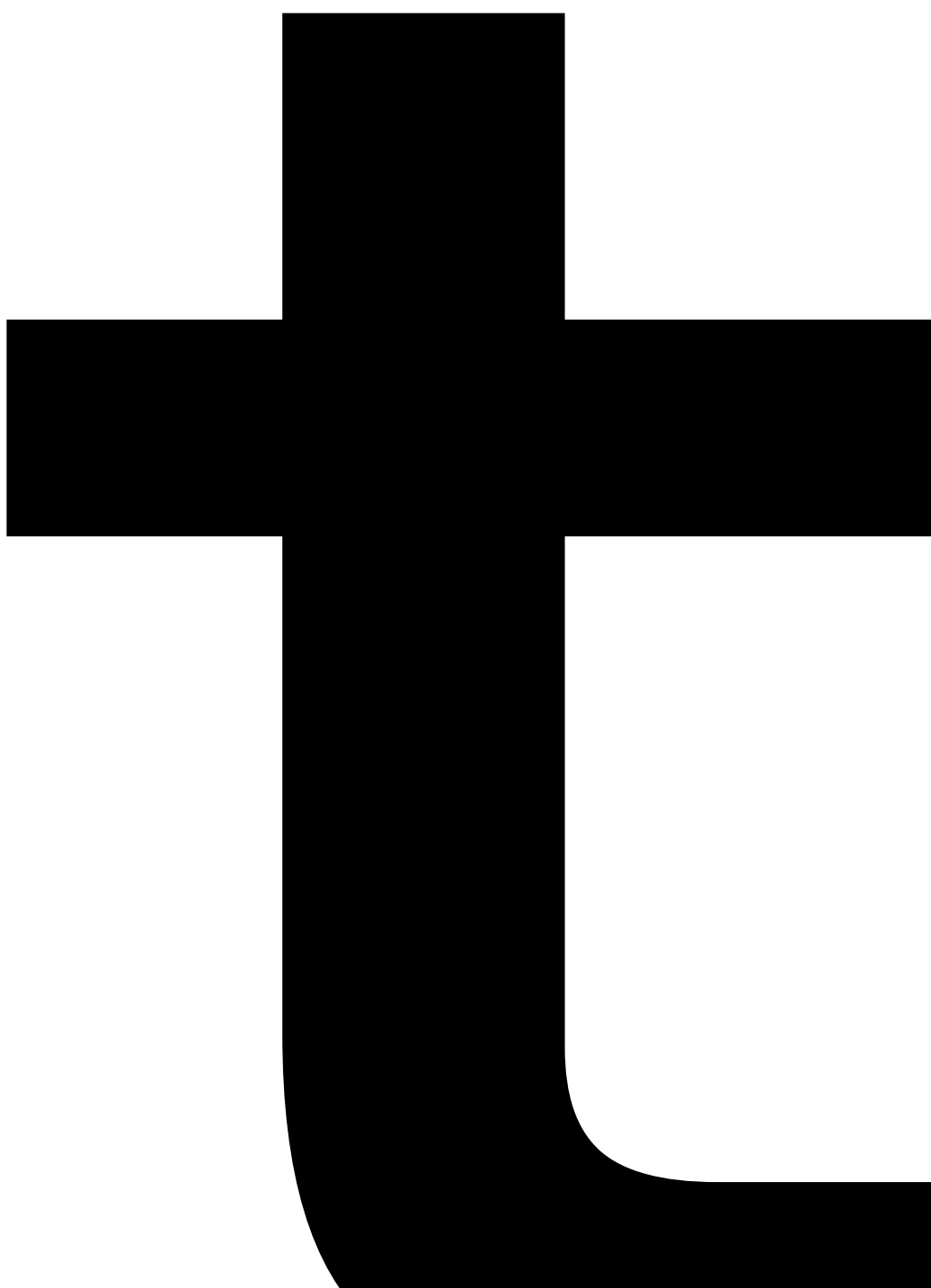


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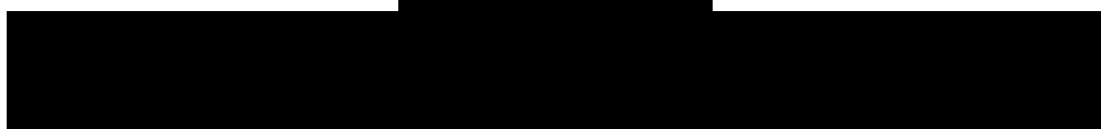
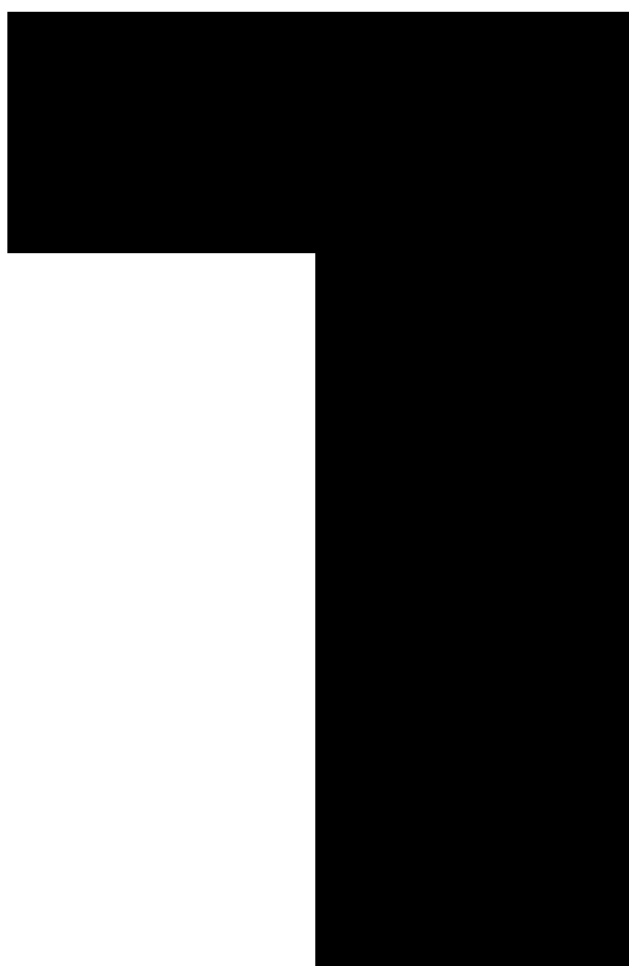
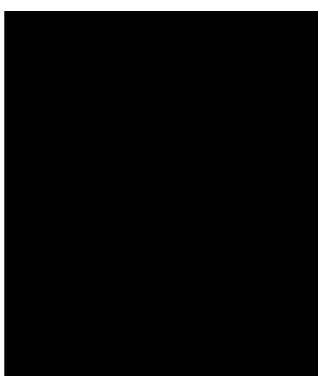




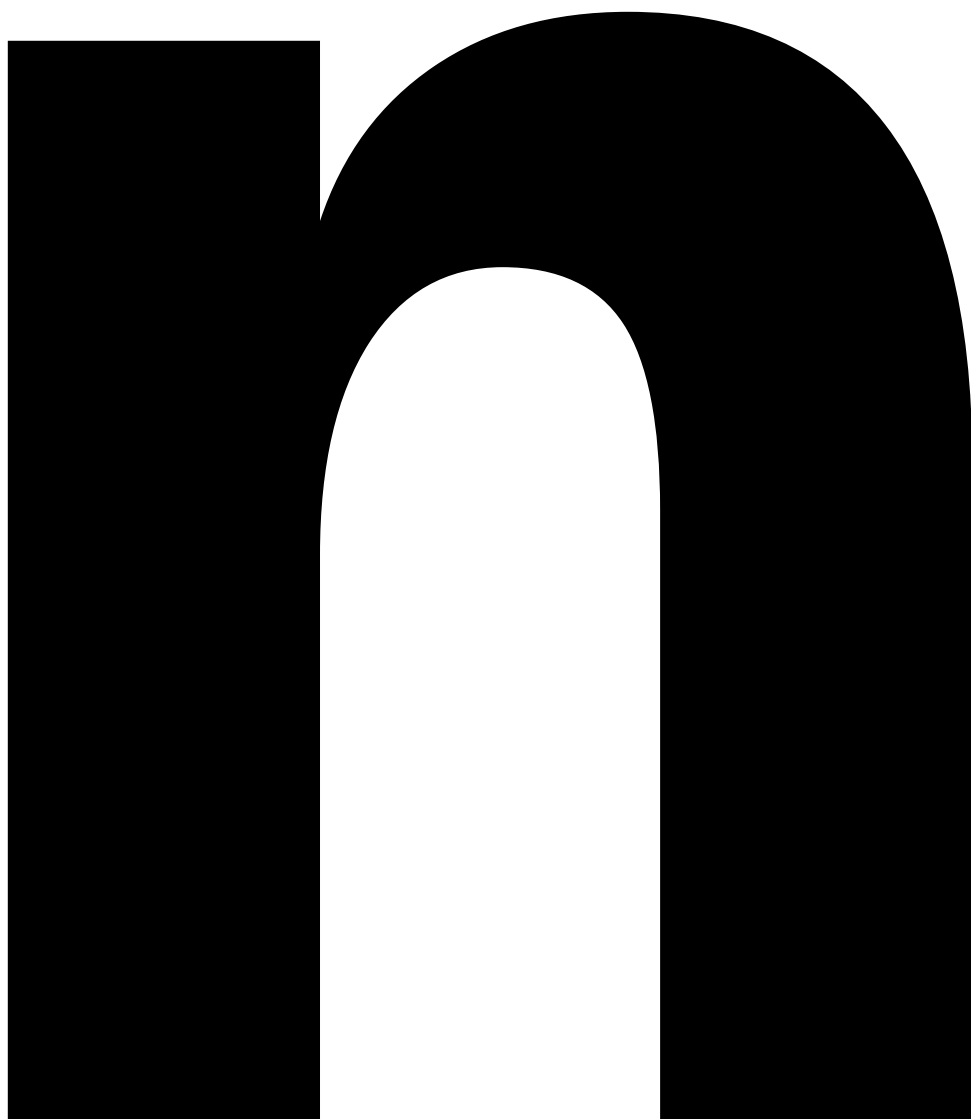


**e**











Q





**e**







**e**



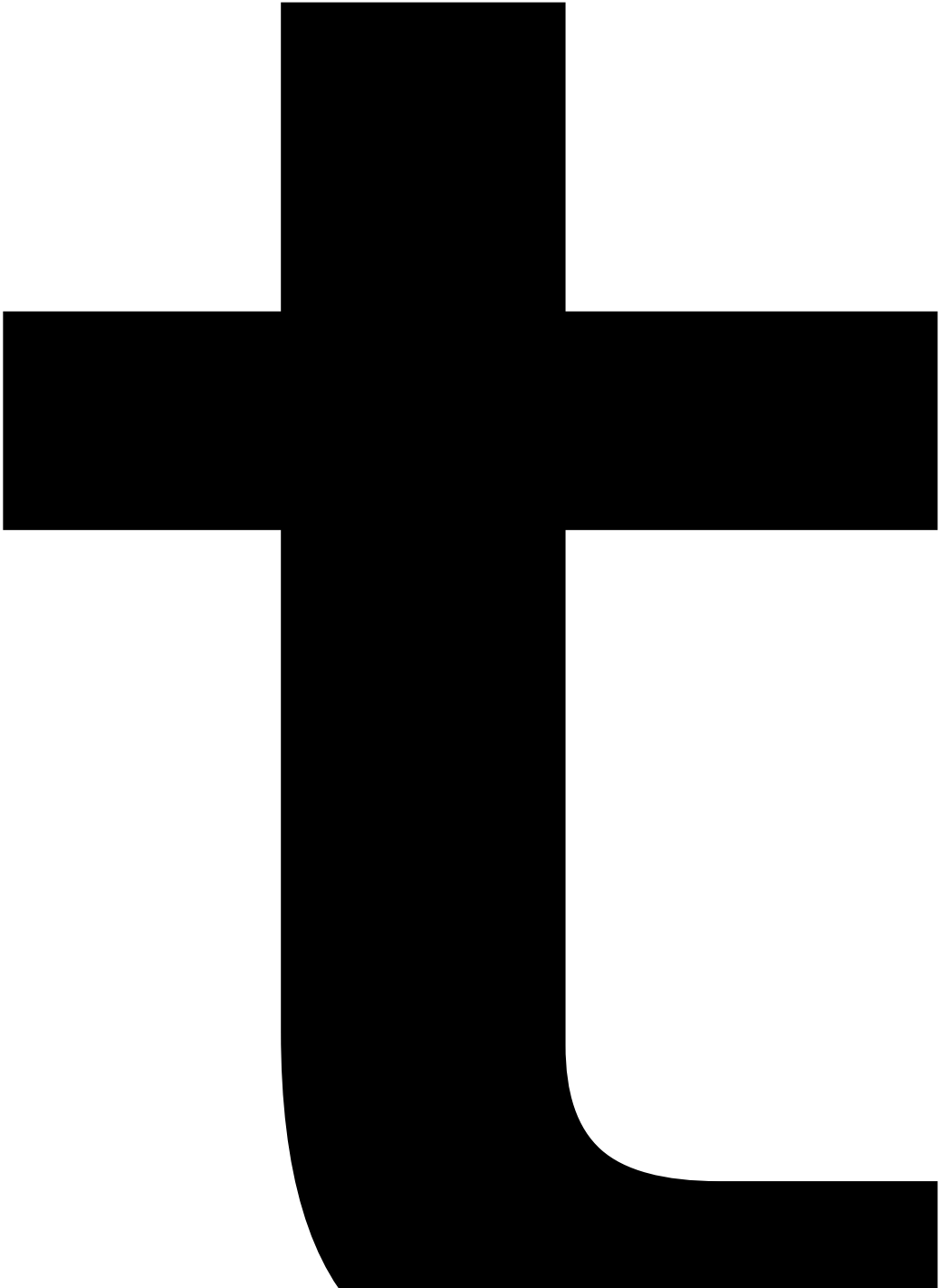






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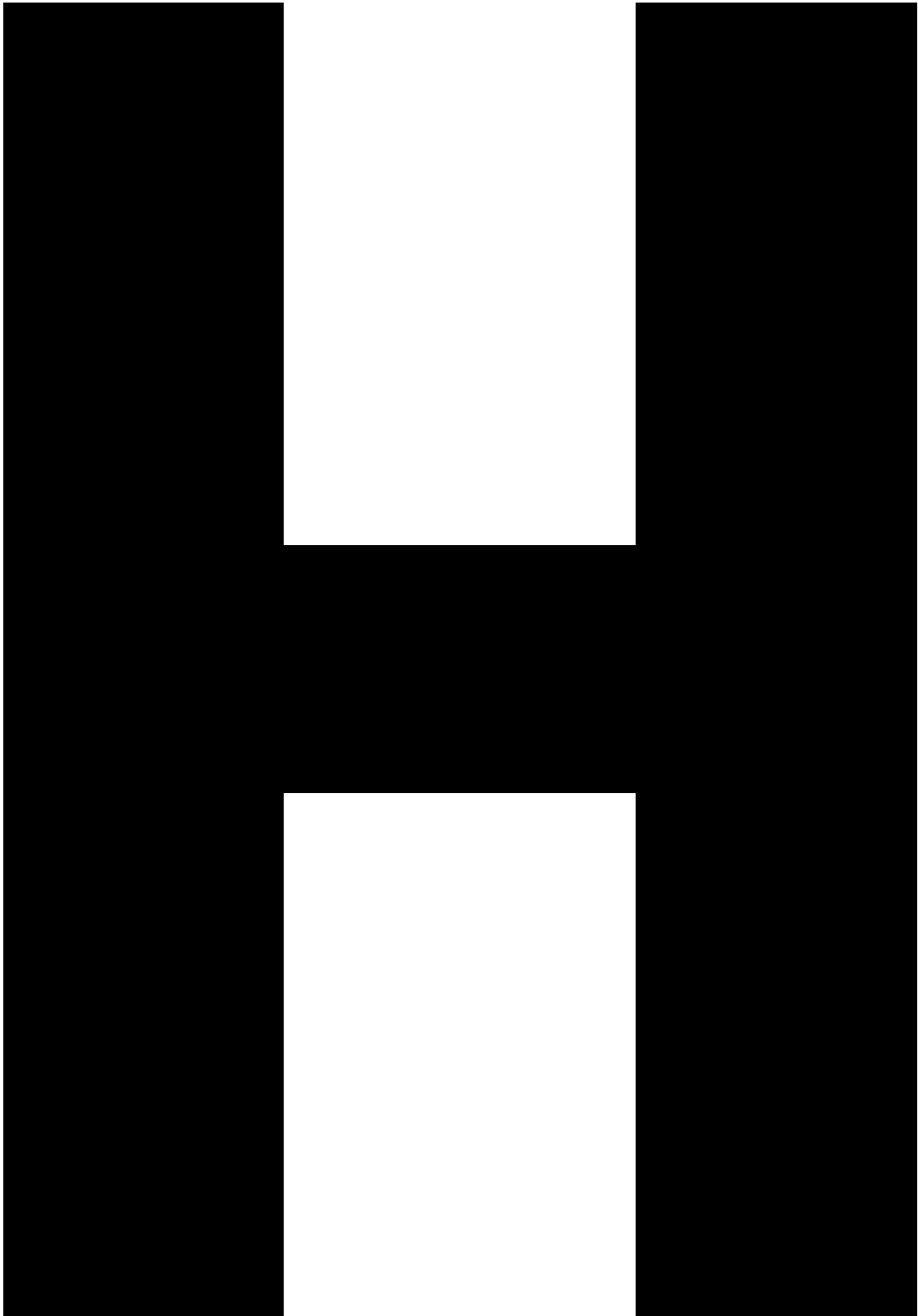
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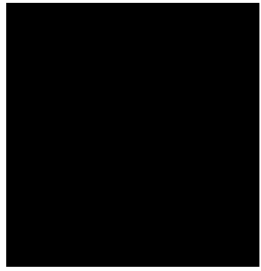
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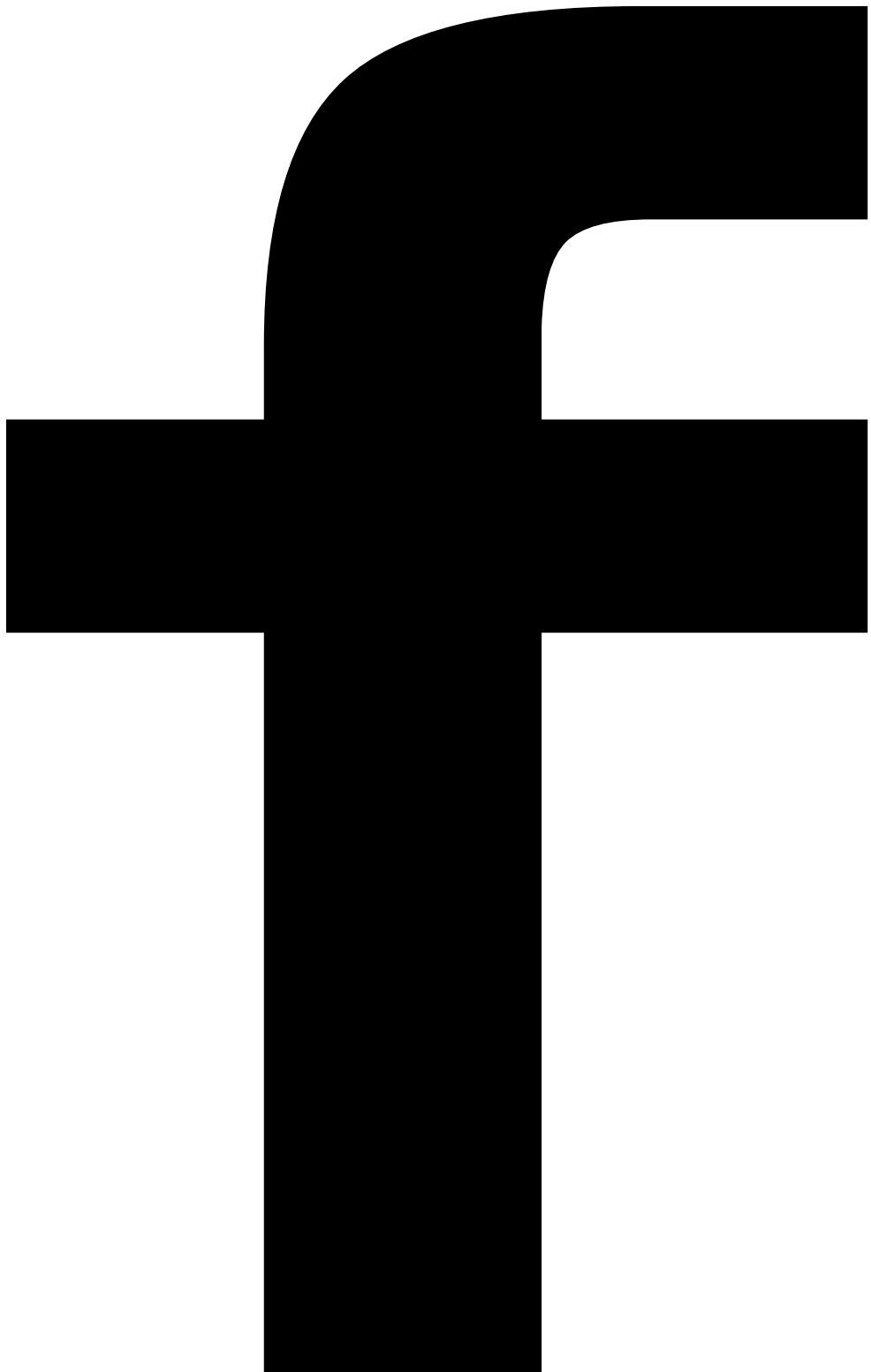






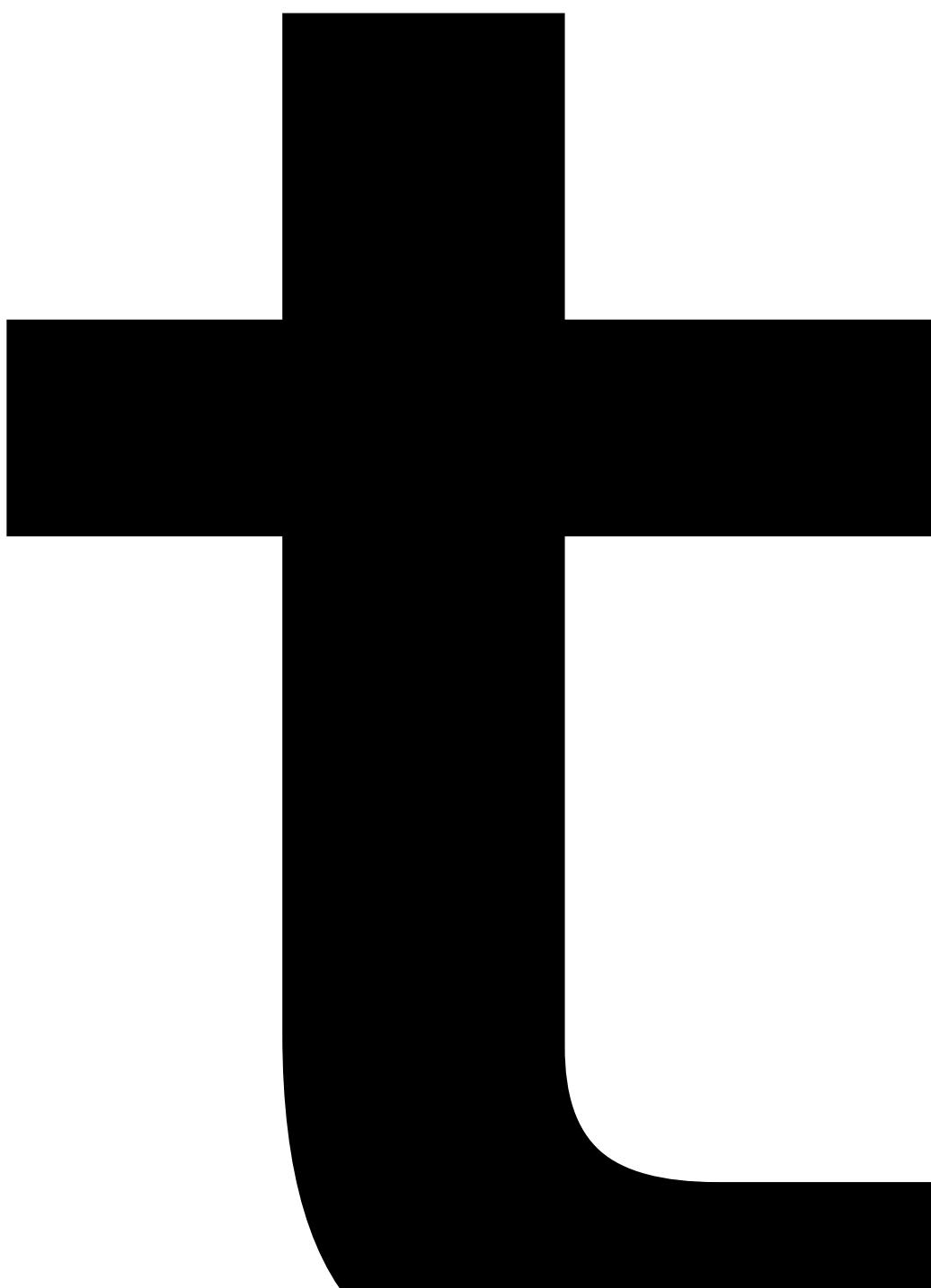
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**e**



Q



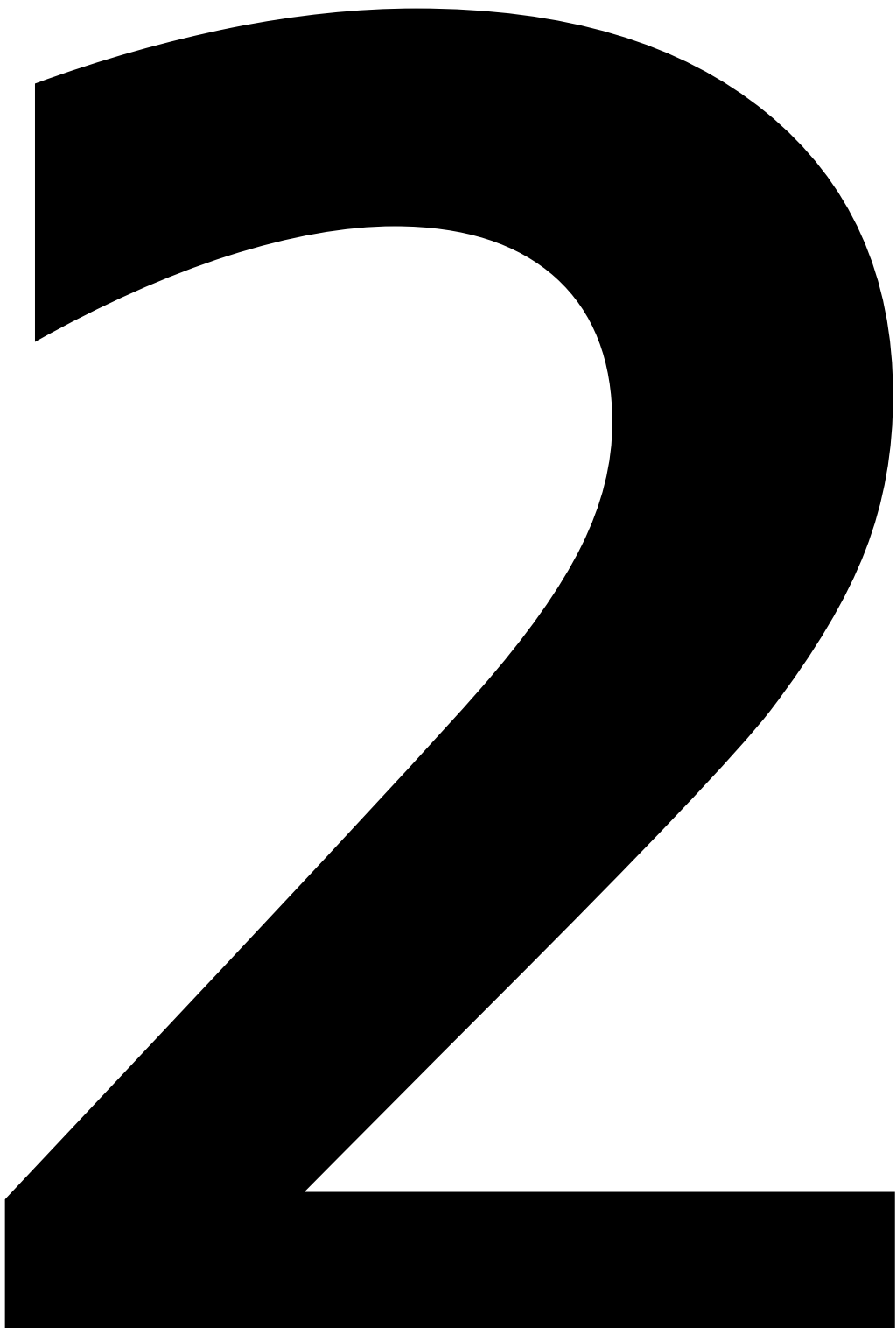
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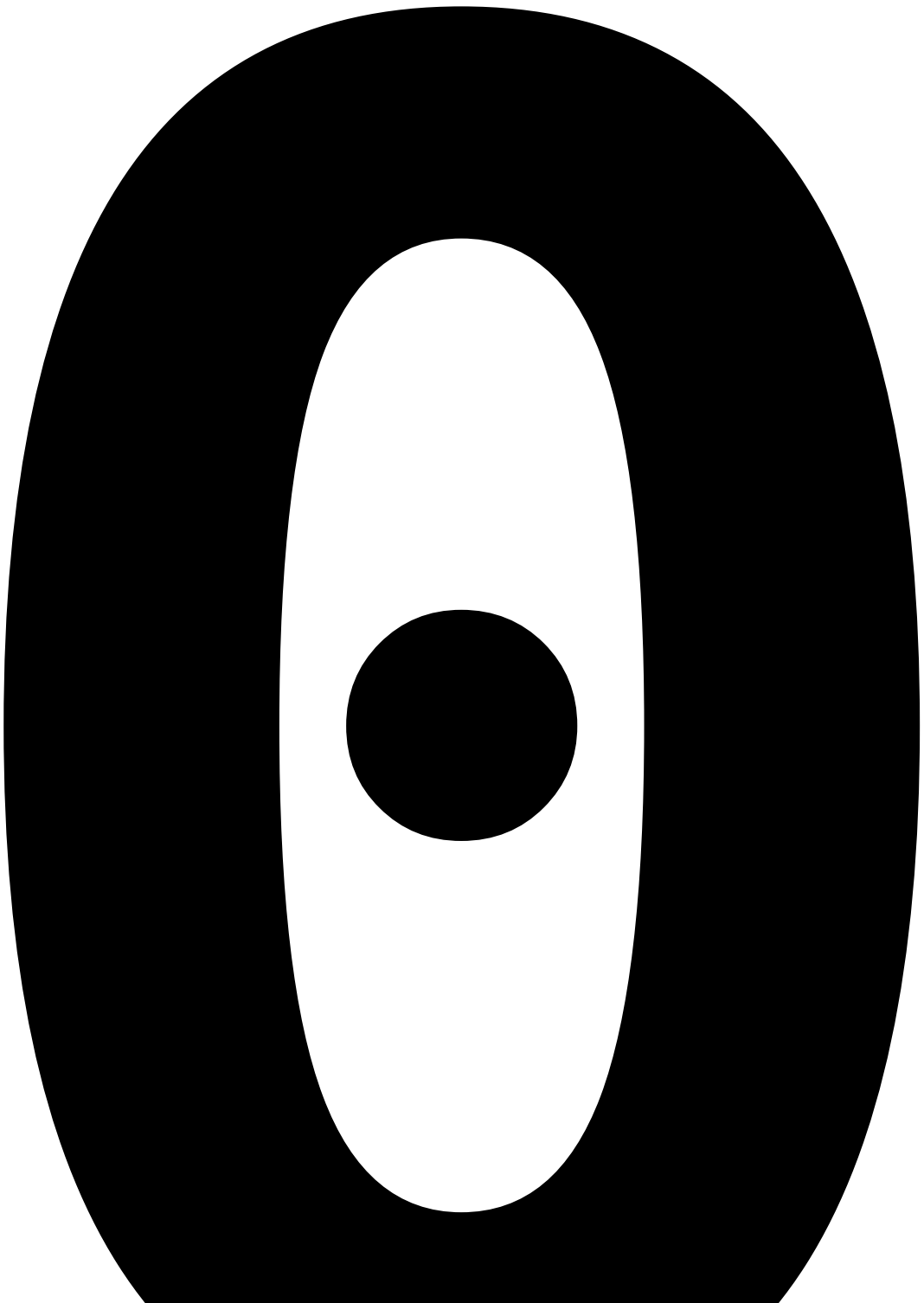


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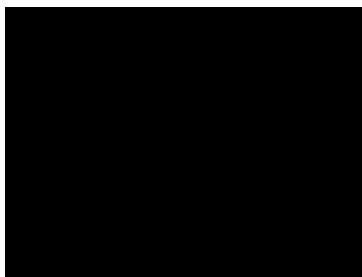














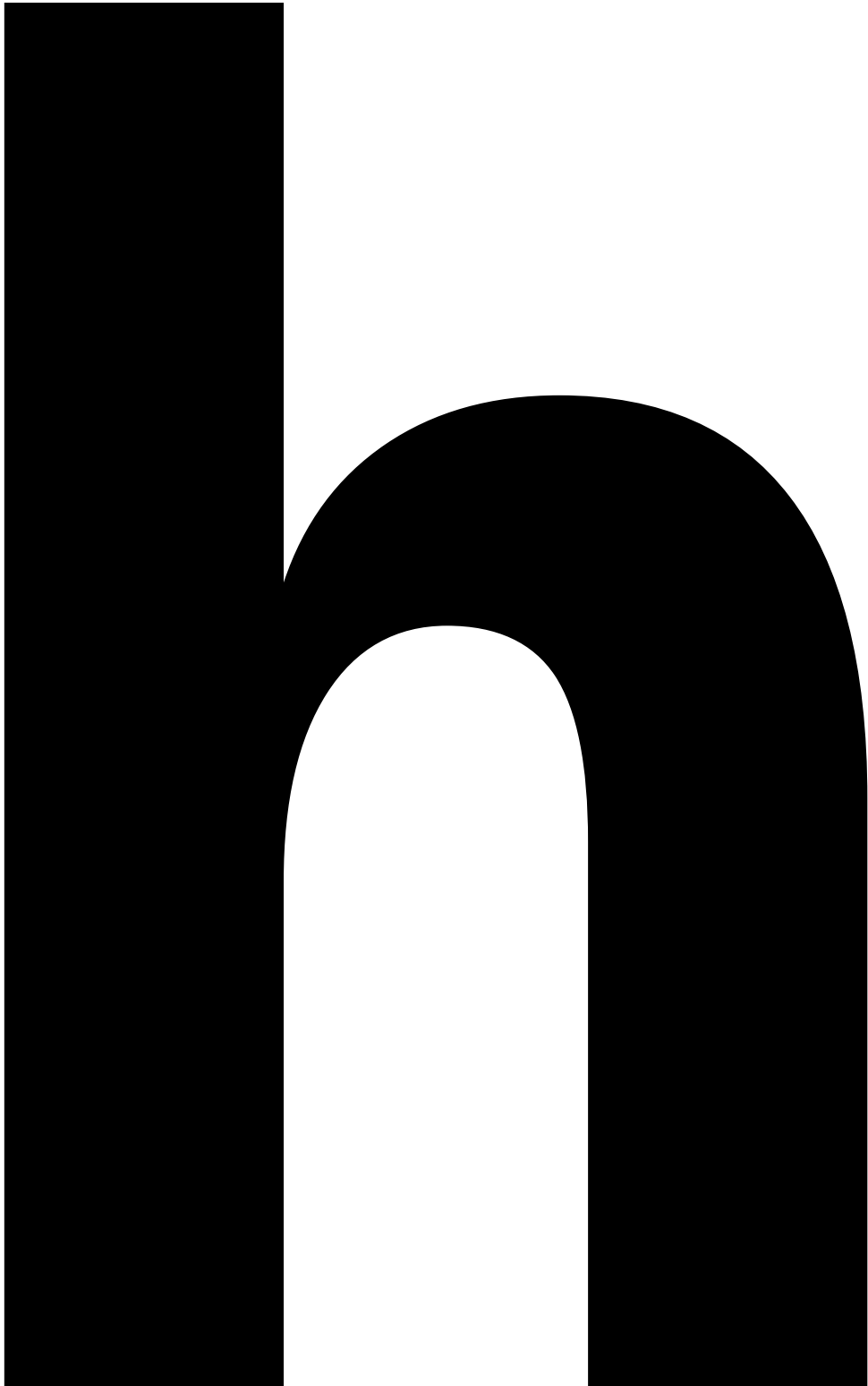


**J**



5



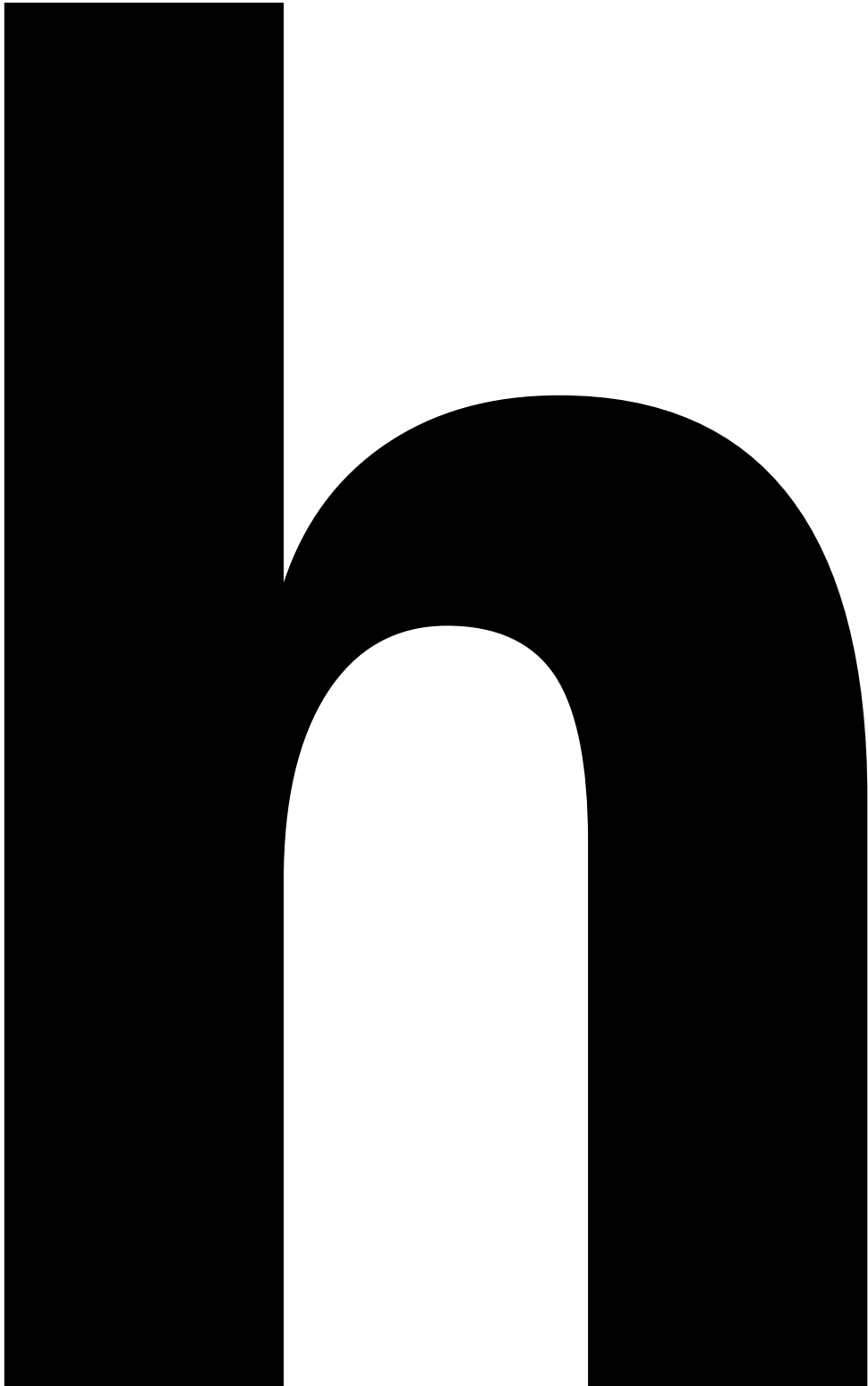








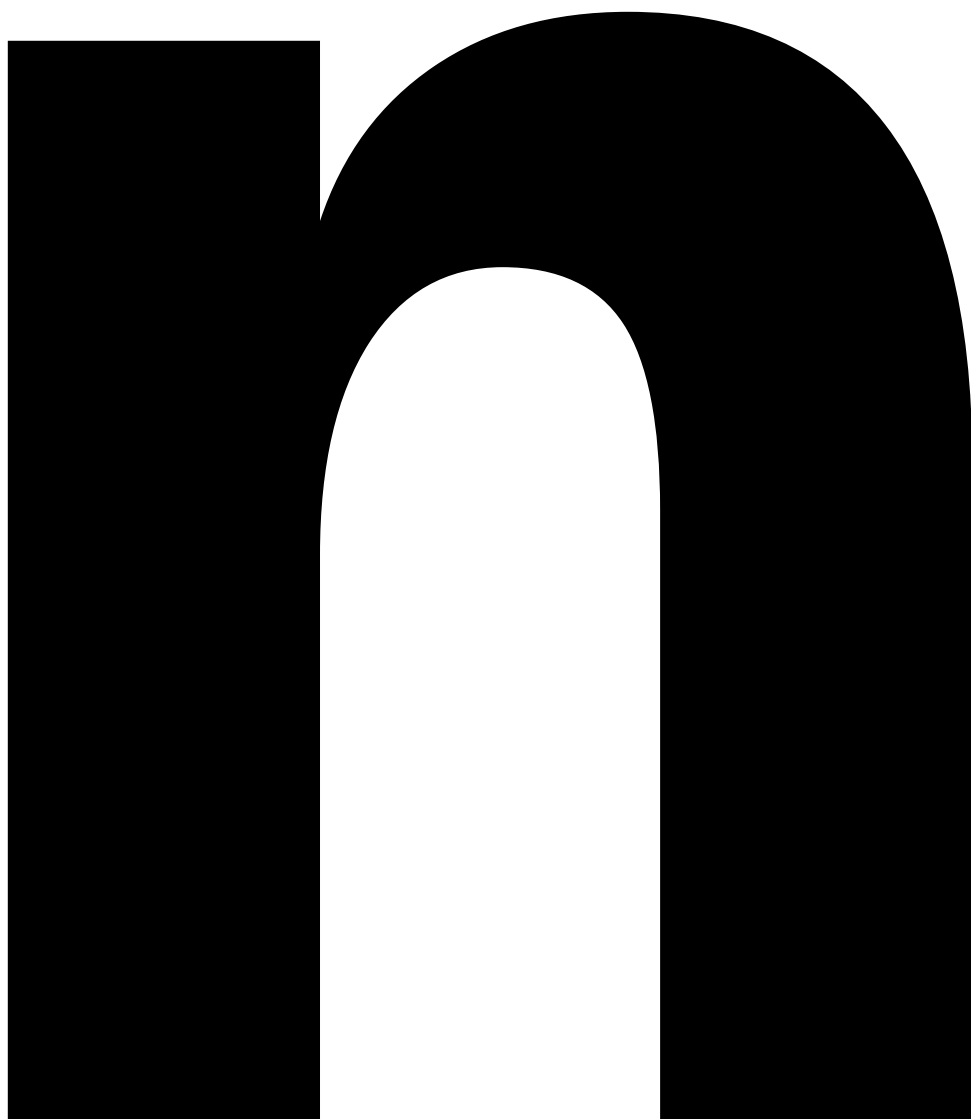






U







Q



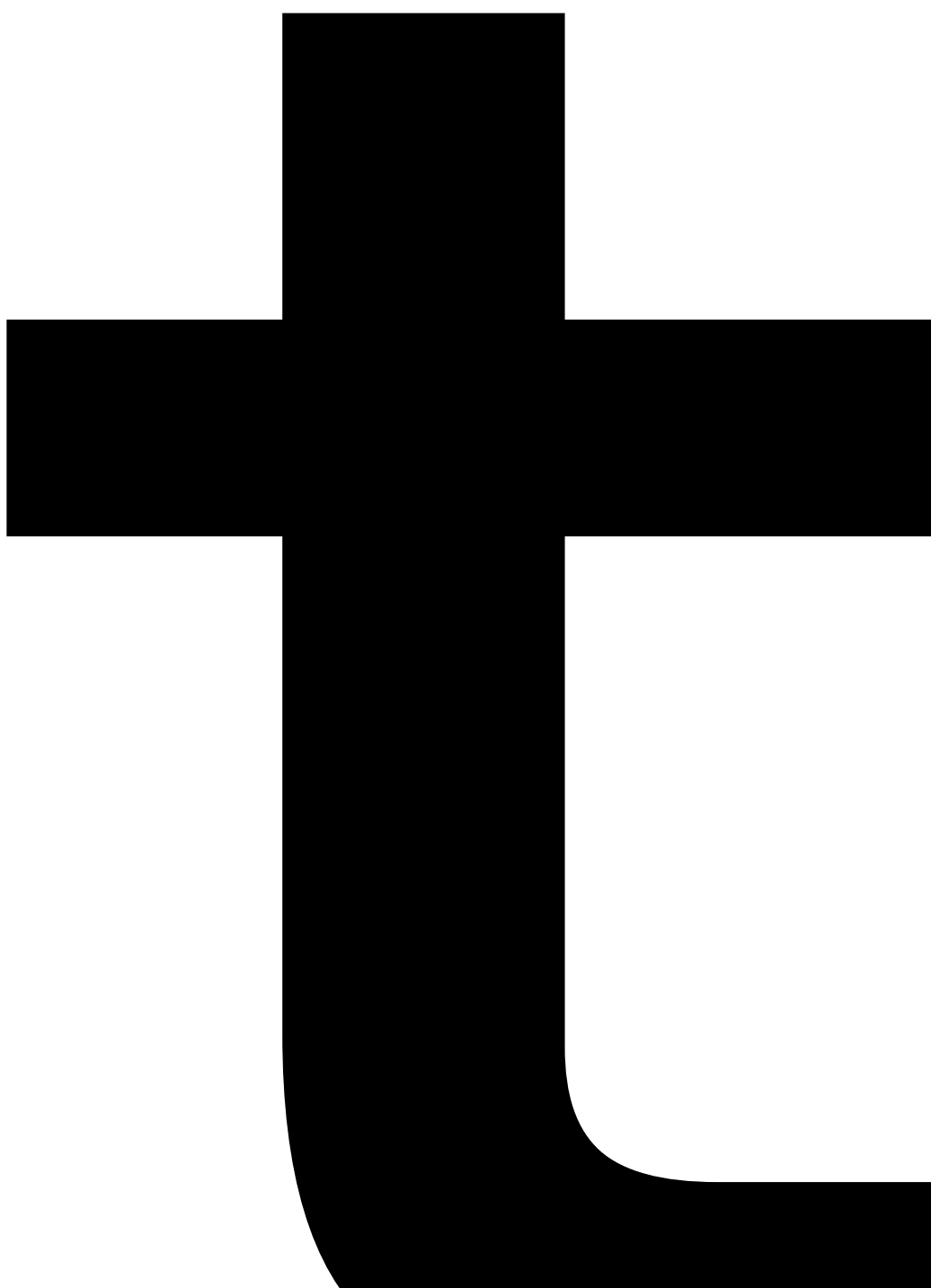


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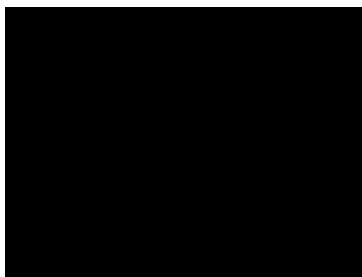




S











**D**



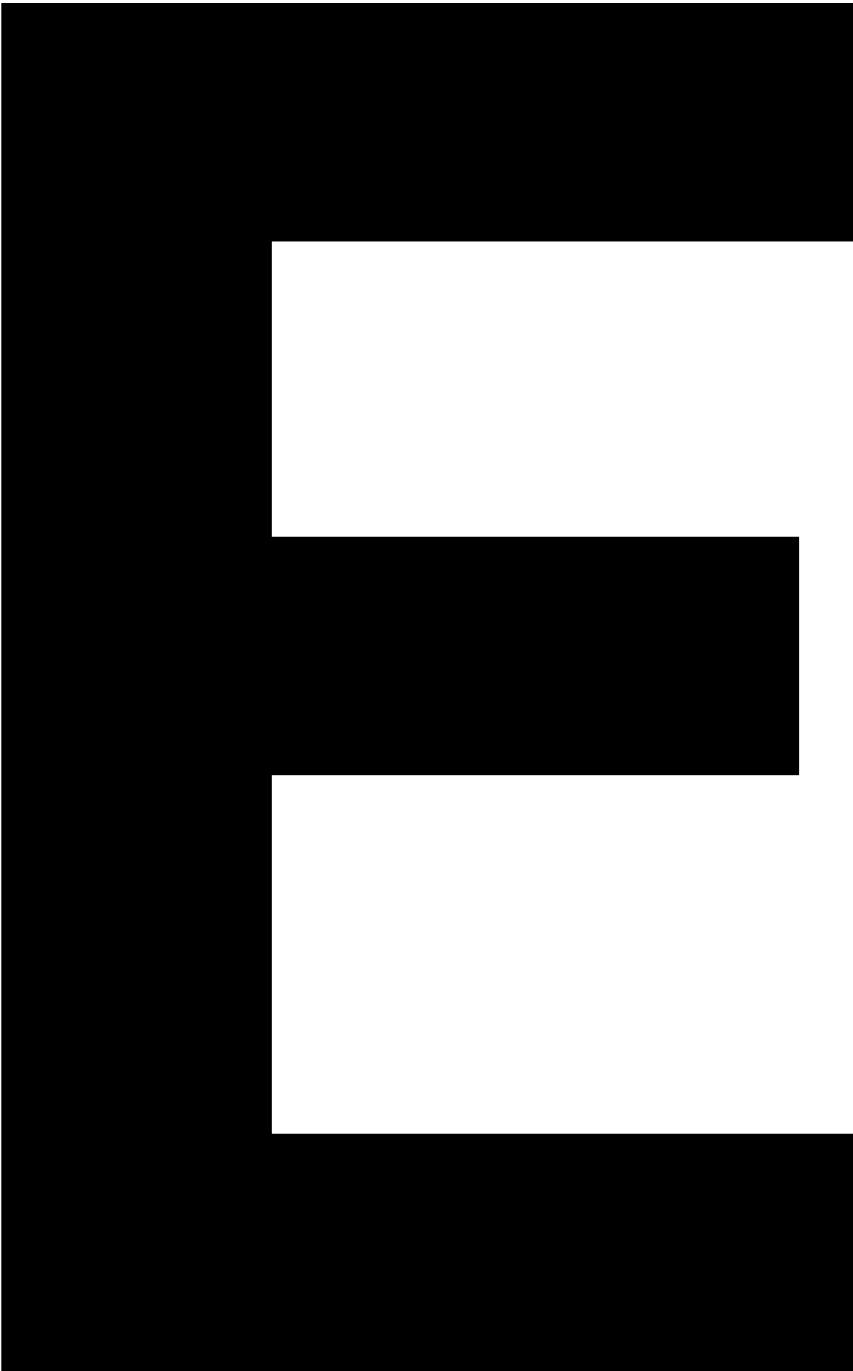
**5**



**S**









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**Q**



**e**





**o**

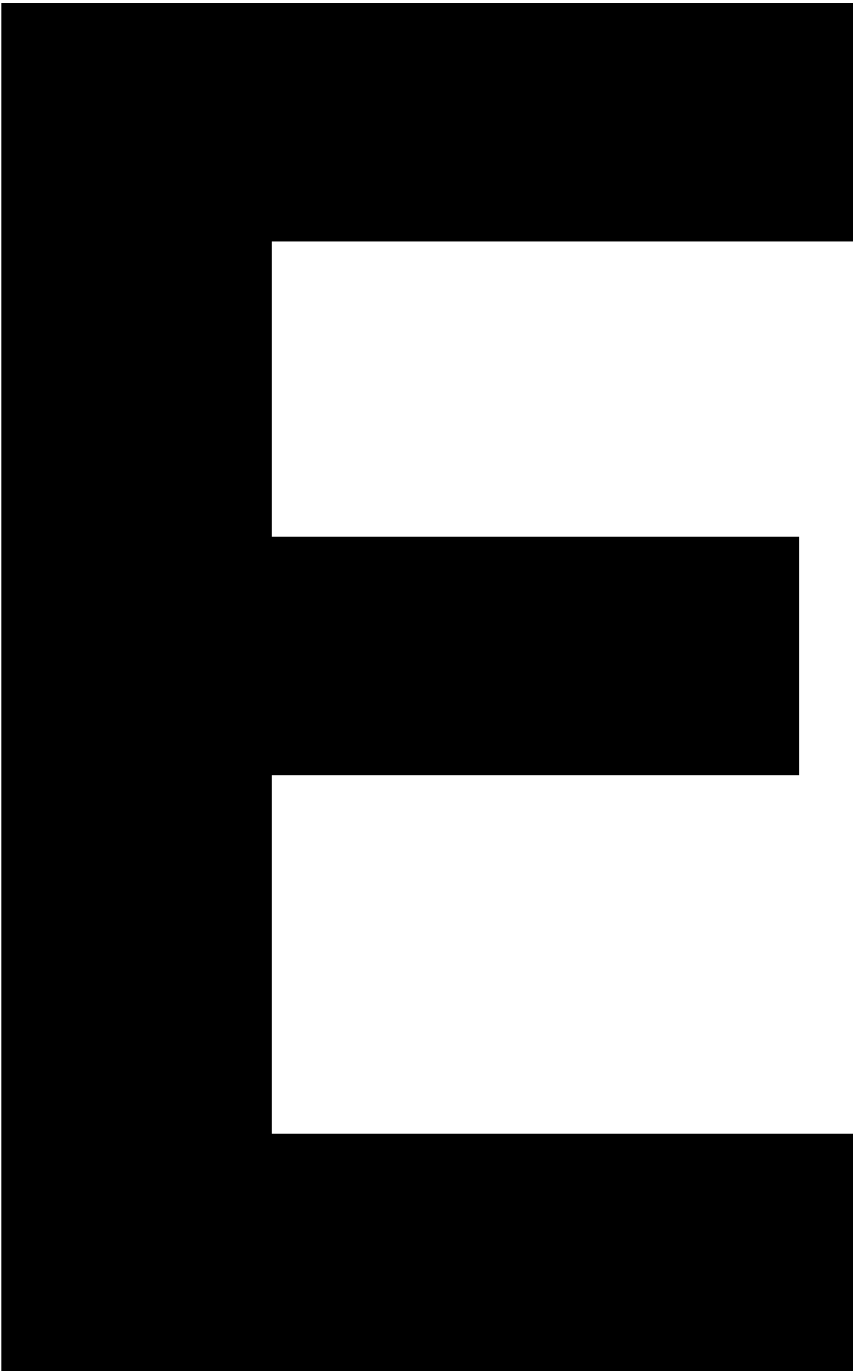


**e**



**r**









**r**



**w**





**5**



**r**





**m**



**u**



**n**



**Q**







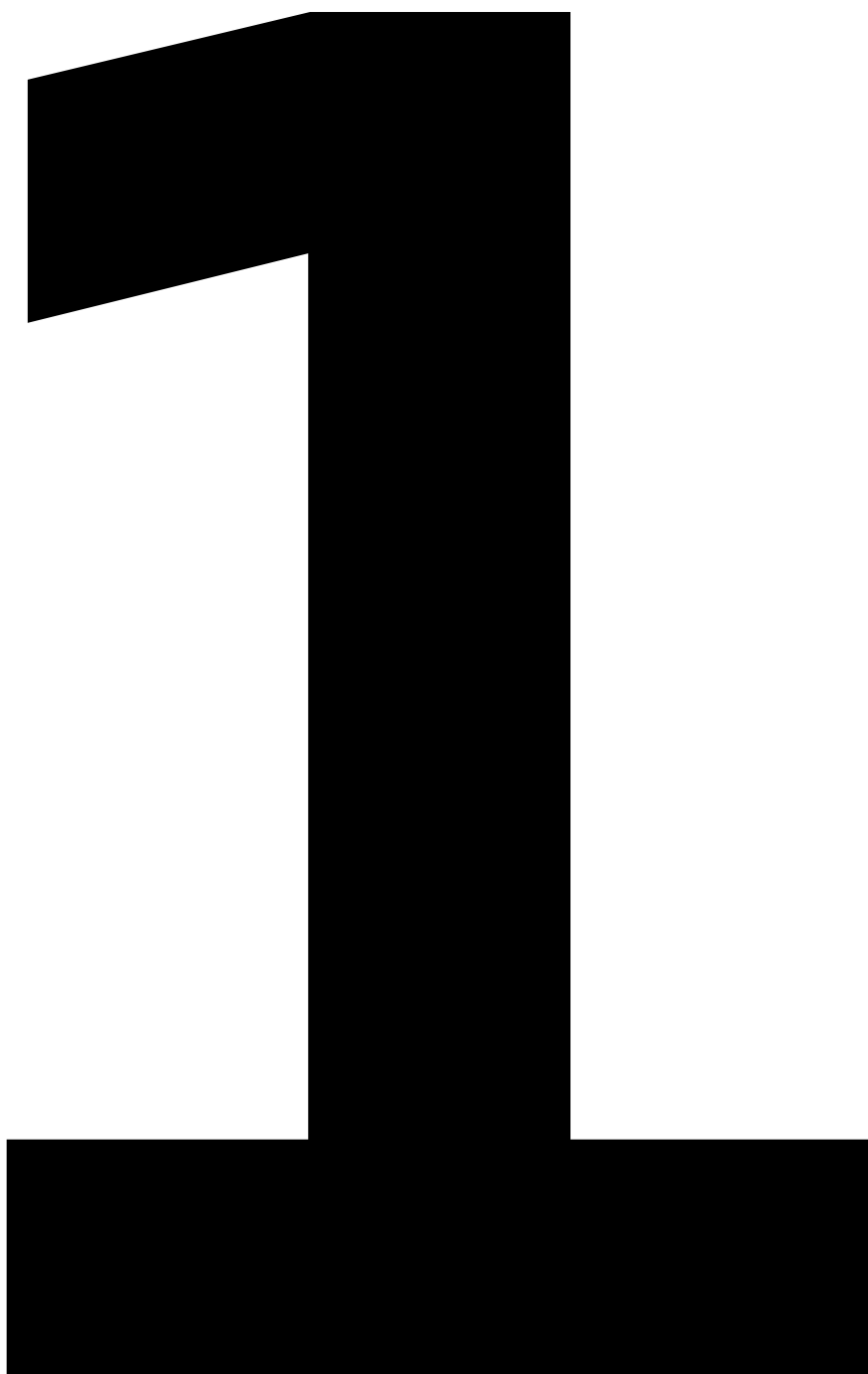


**m**



2













**J**



**5a**



**h**





**r**



**h**



**u**



**n**





**o**



e



**r**









**w**







**r**



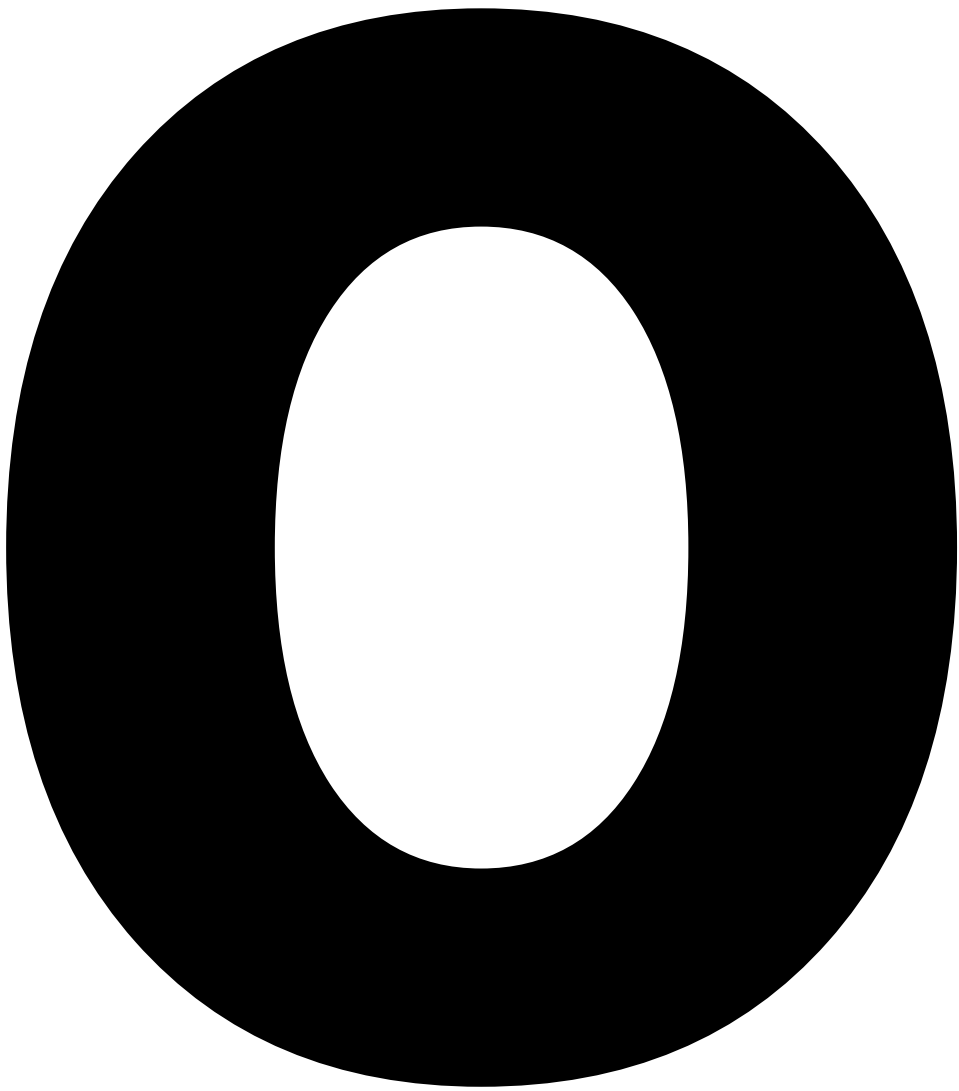
**o**





**V**







**n**



**N**





**A**

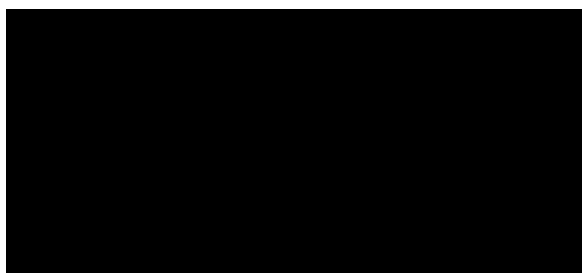


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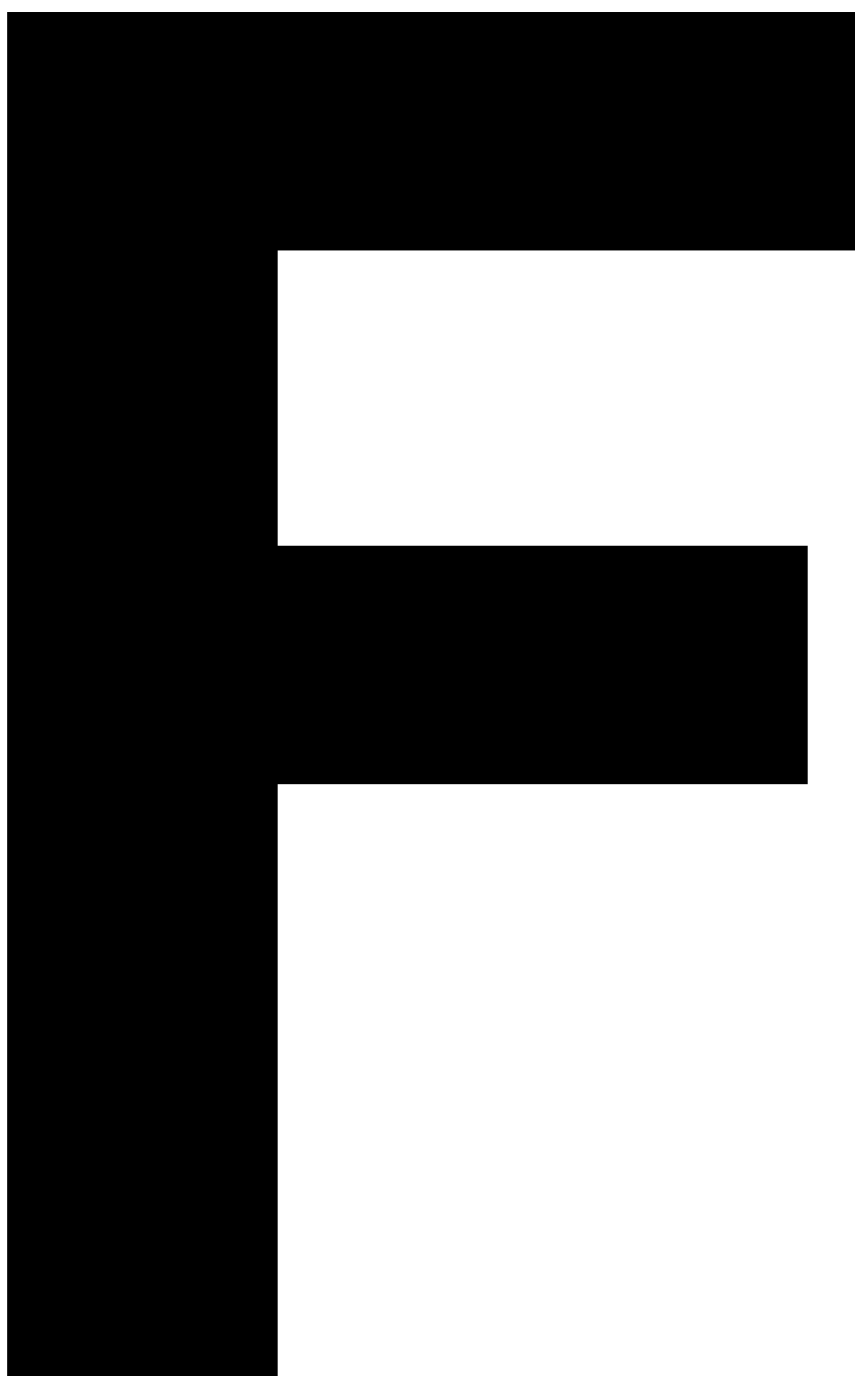
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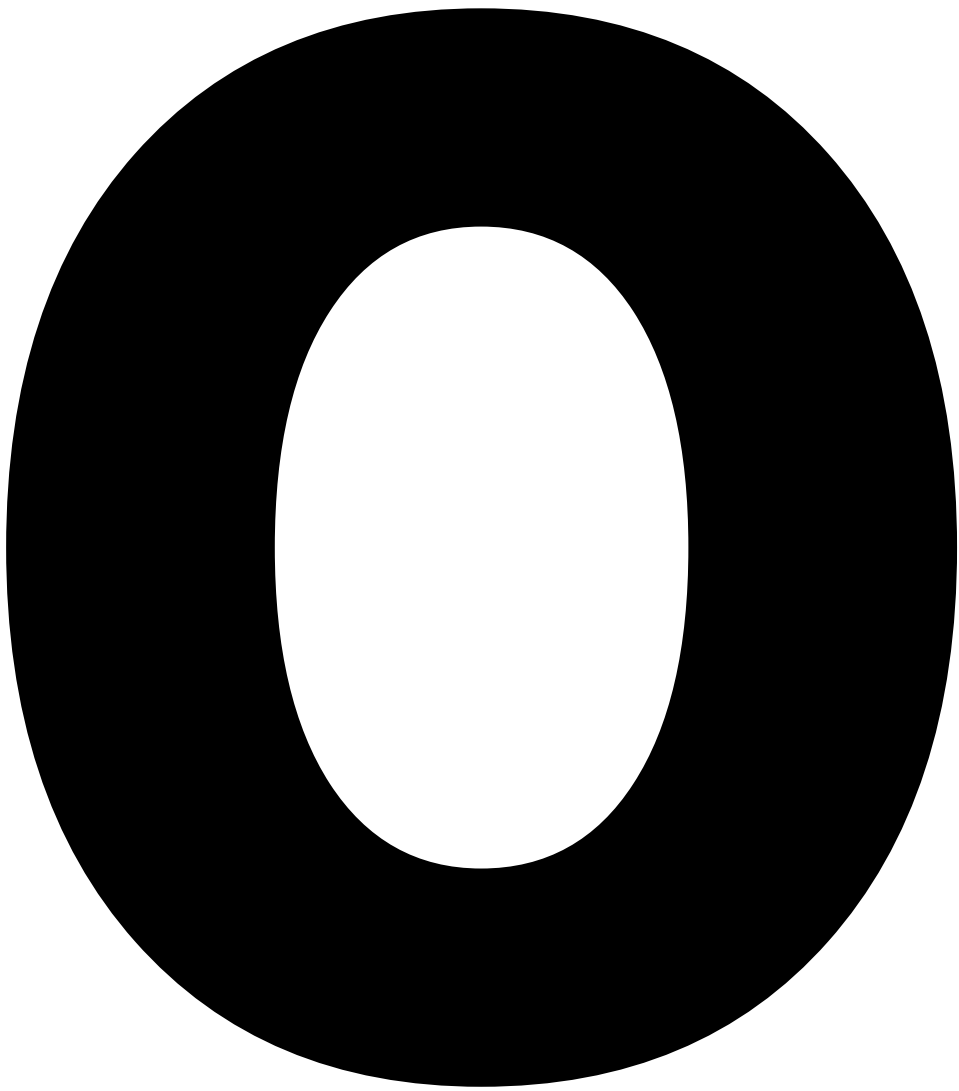














**r**



**S**





**C**



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**e**



**r**





**n**



**o**



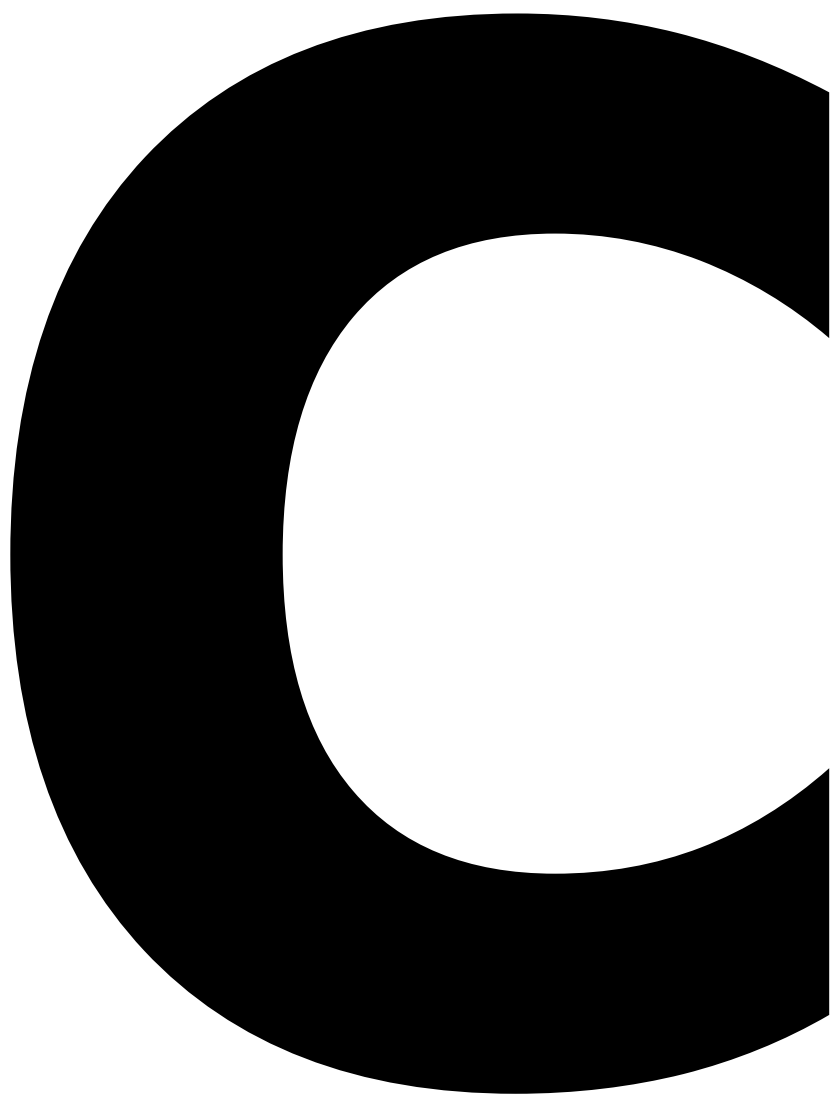
**u**



**r**









**h**



**o**



**5**



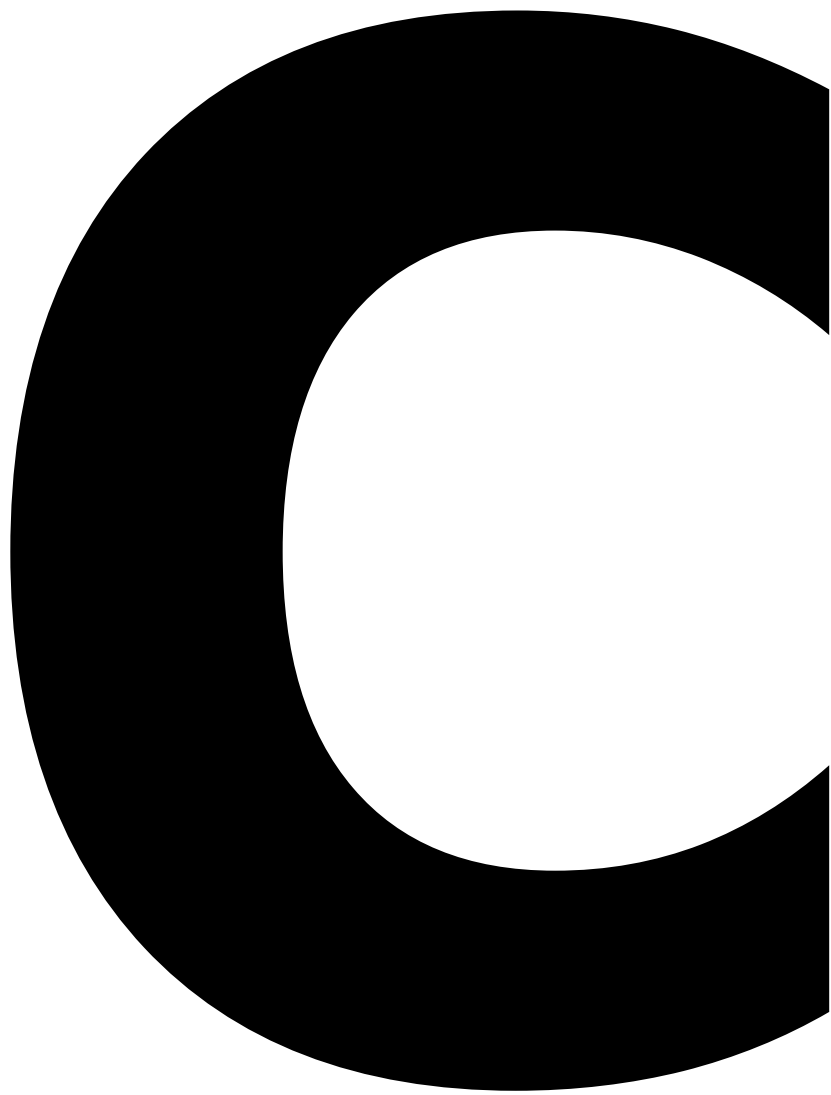


**S**



**S**







**h**





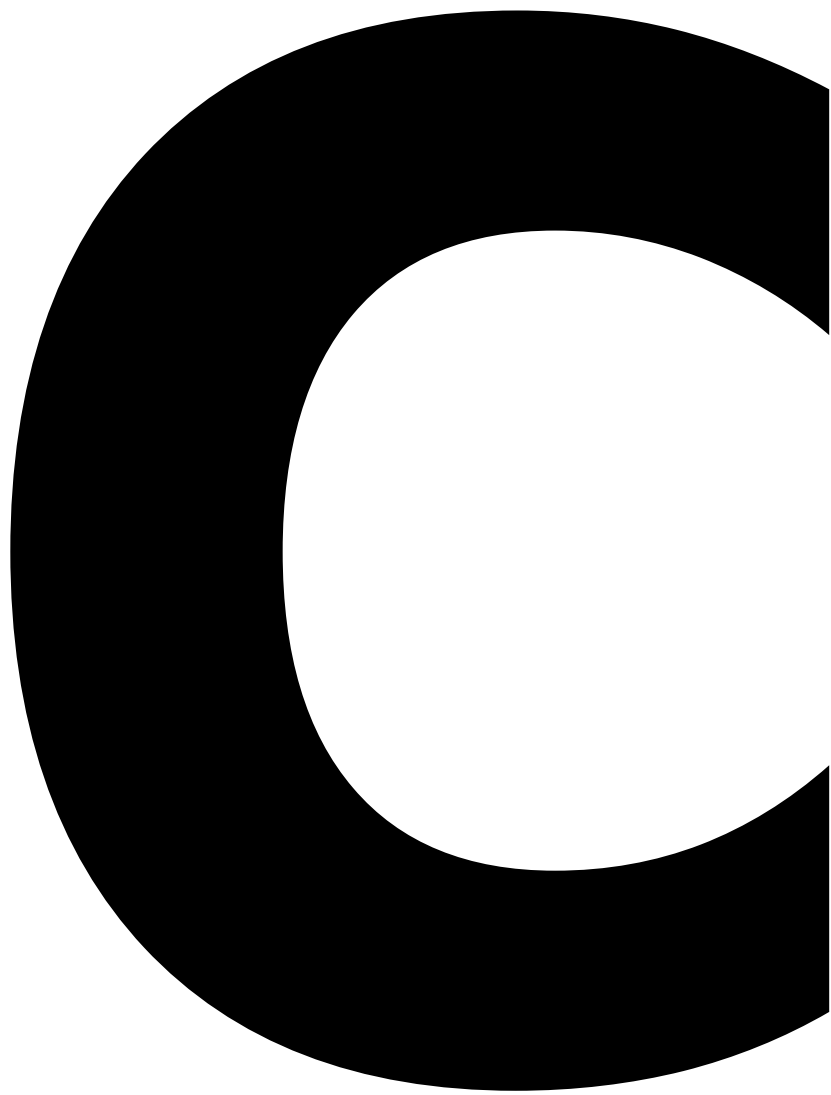
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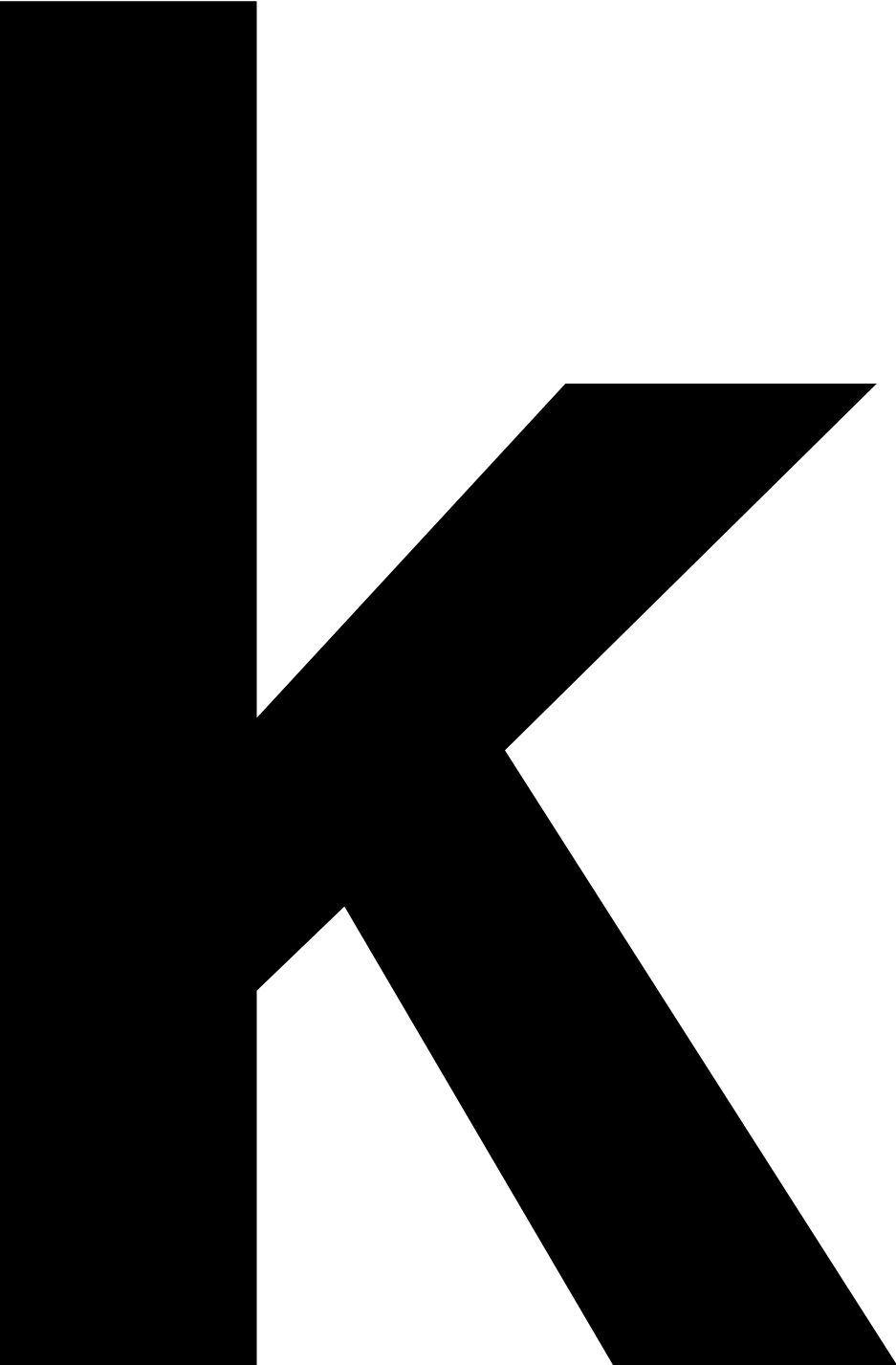
e





**r**







**J**





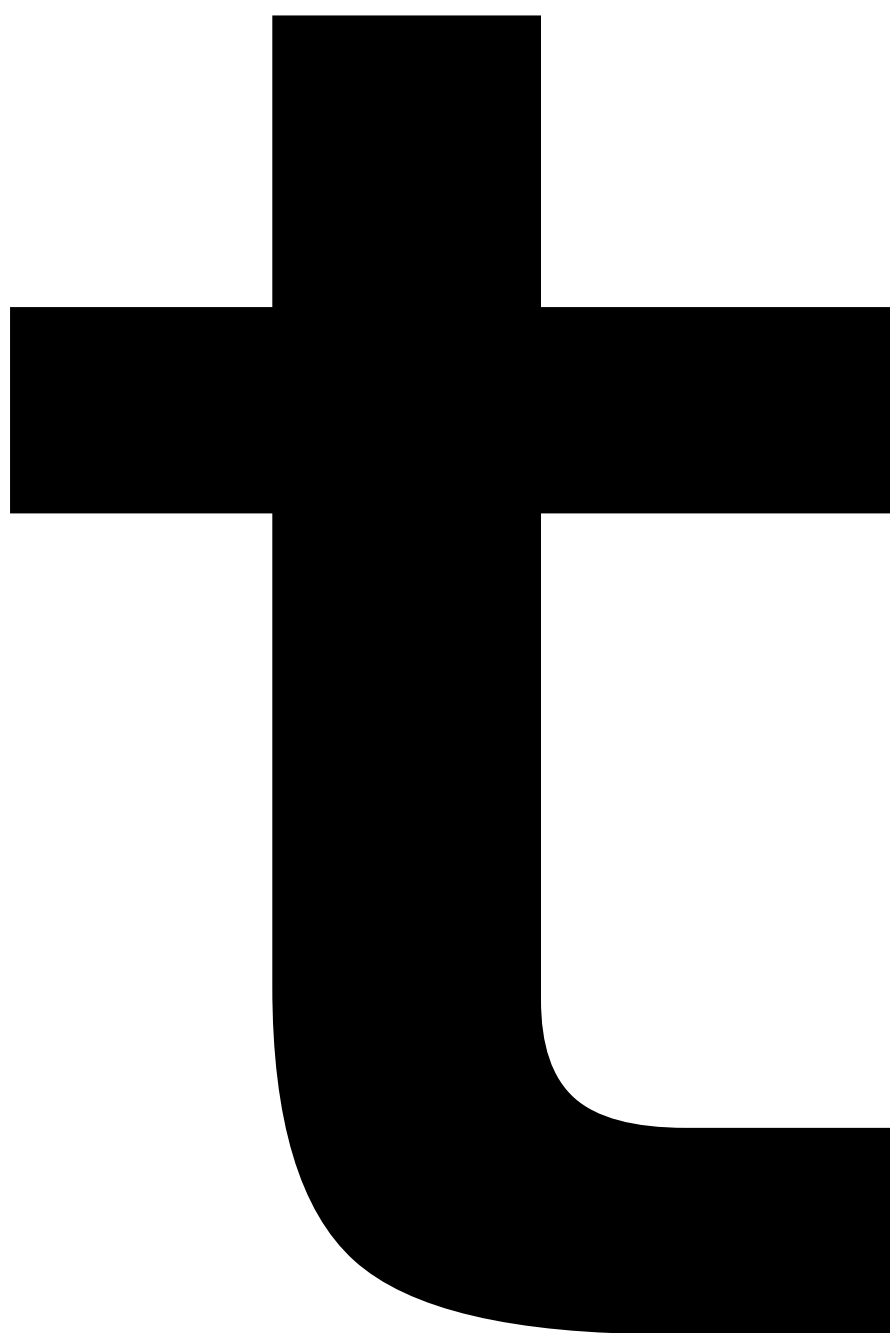
**5**





**r**











**D**



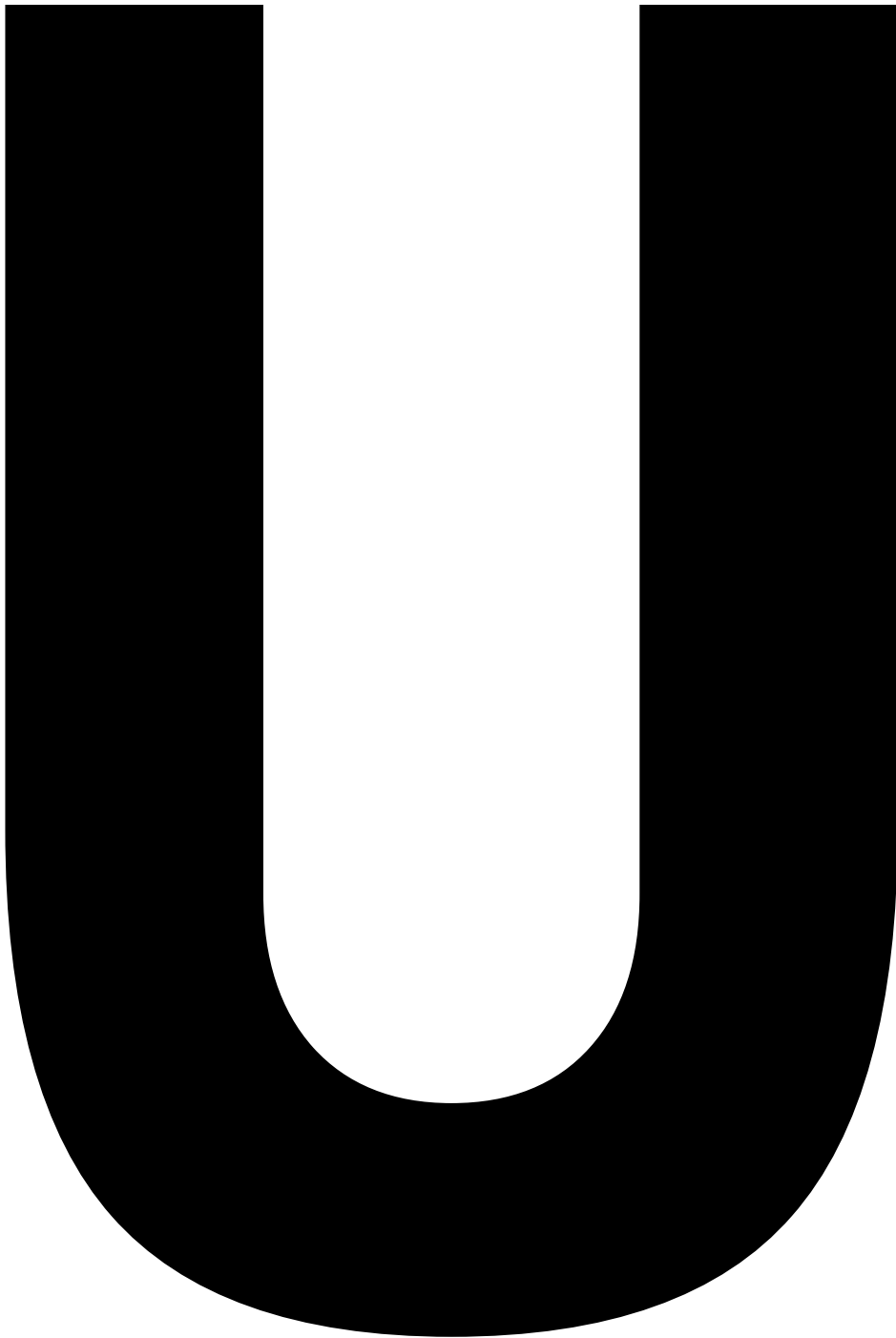






**e**







**10**





**e**

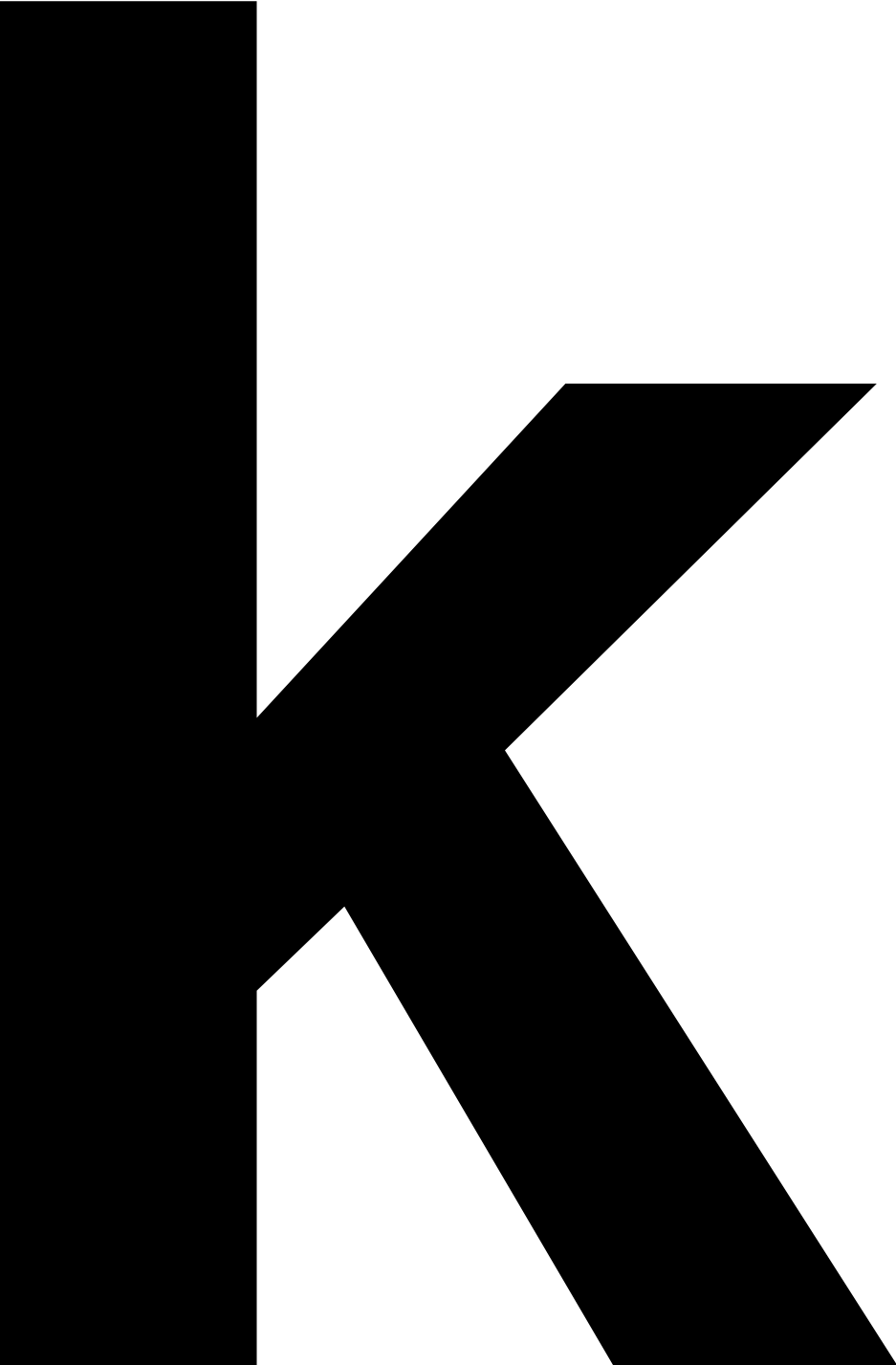


**r**



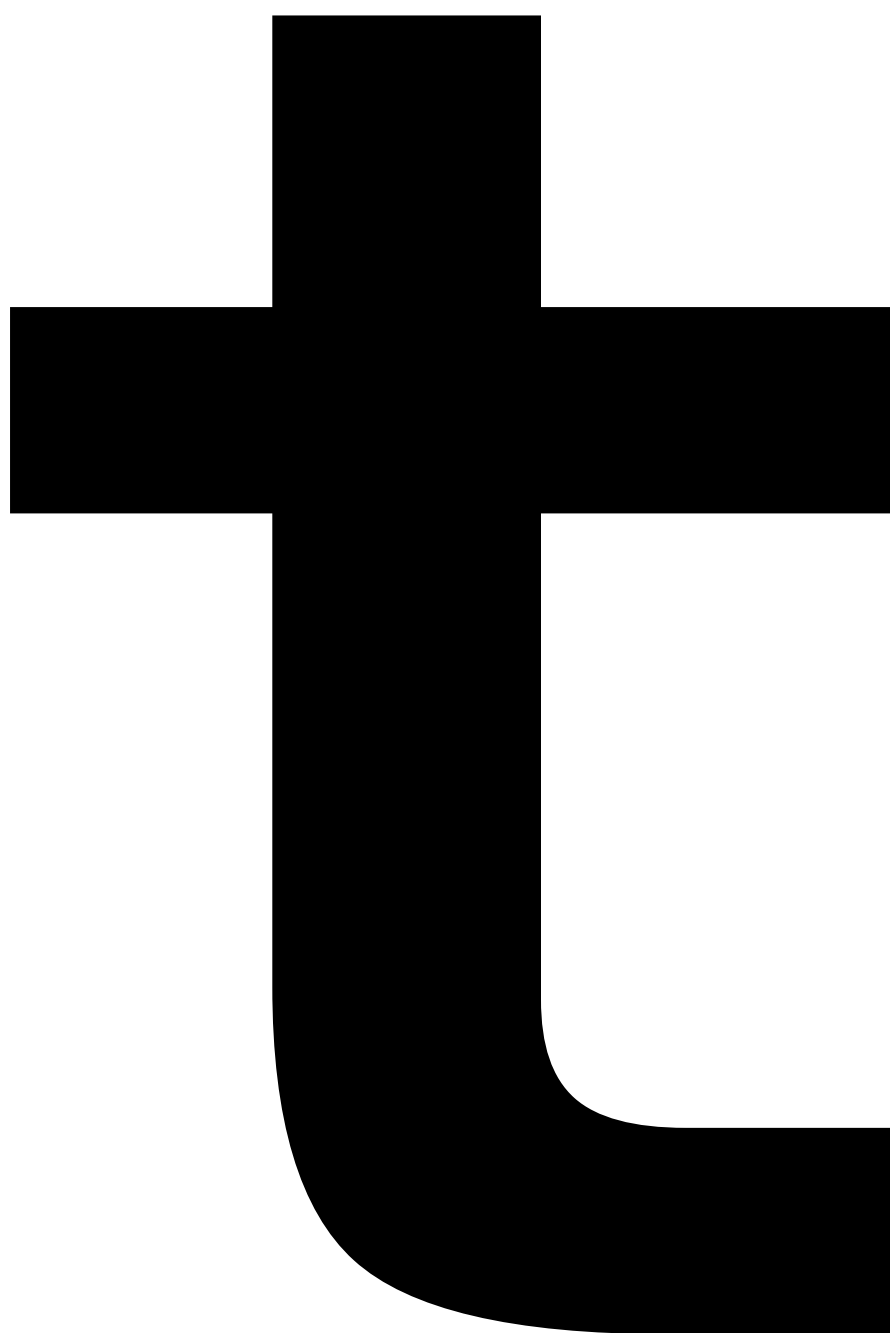
**5**

















**V**















**5**







**Q**





**e**

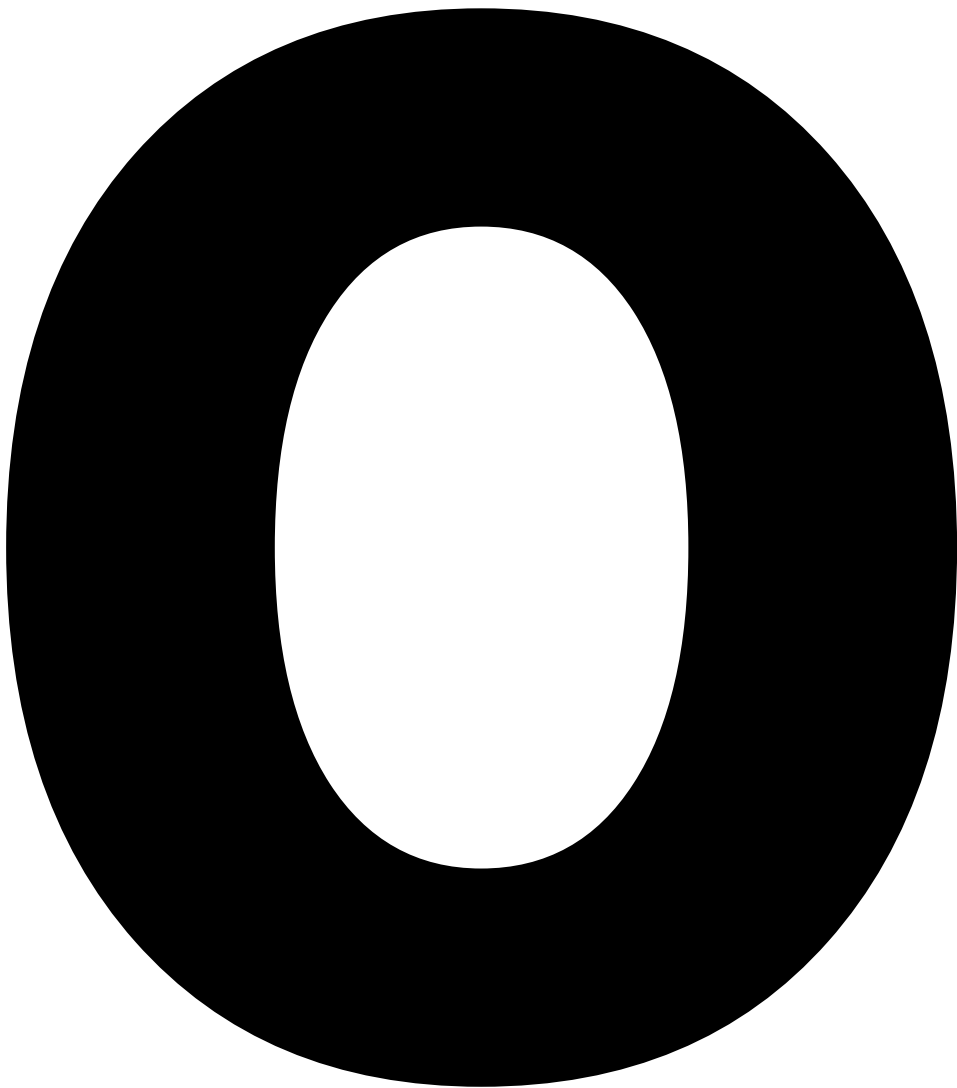


**r**



**S**









**n**



**n**



**e**







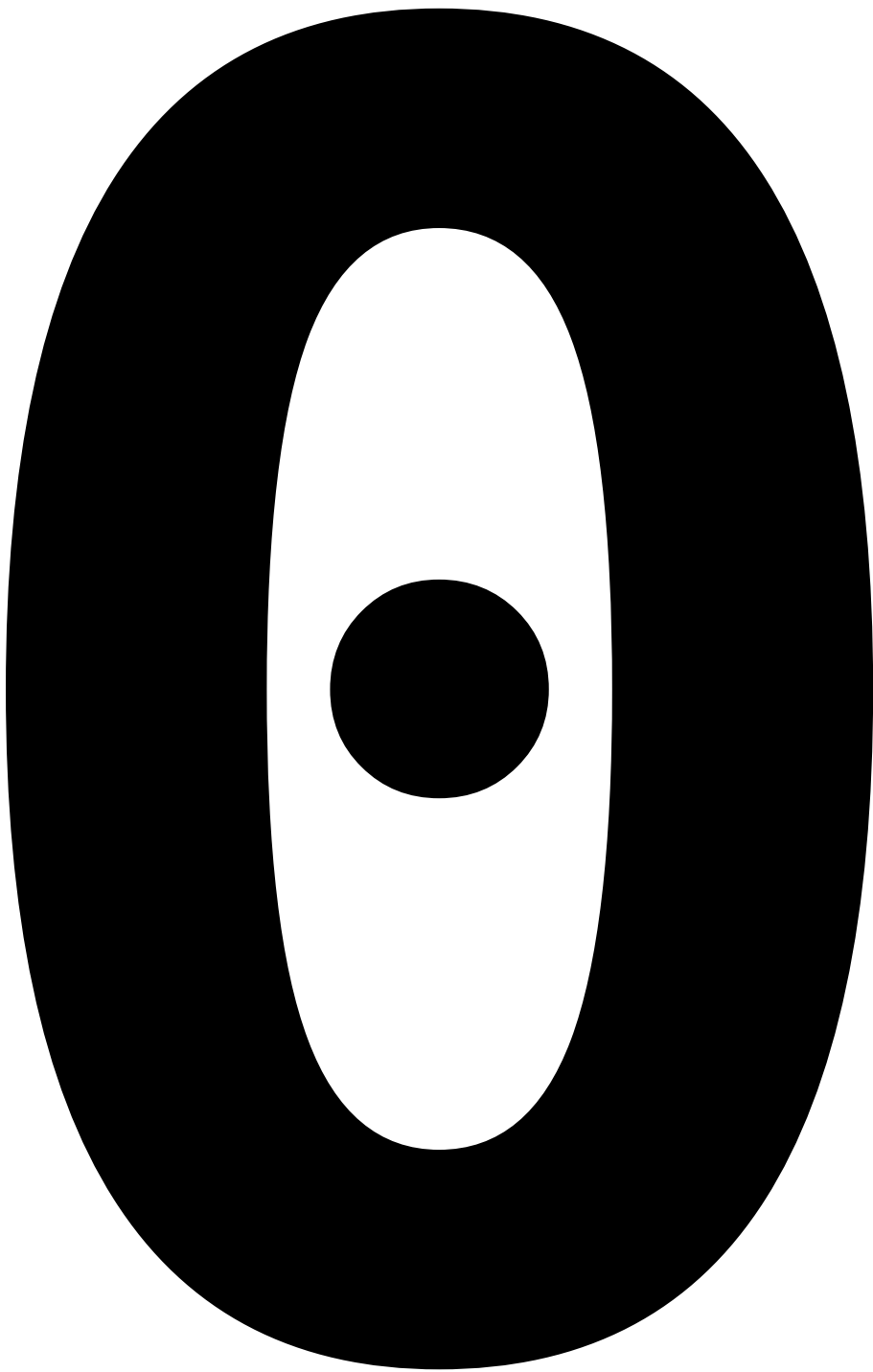


**m**



2













**J**



**5a**



**h**



**r**





**h**



**u**



**n**



**o**





**e**



**r**







**h**





**5**











**e**





**o**



**5a**



**Q**



**e**





**Q**

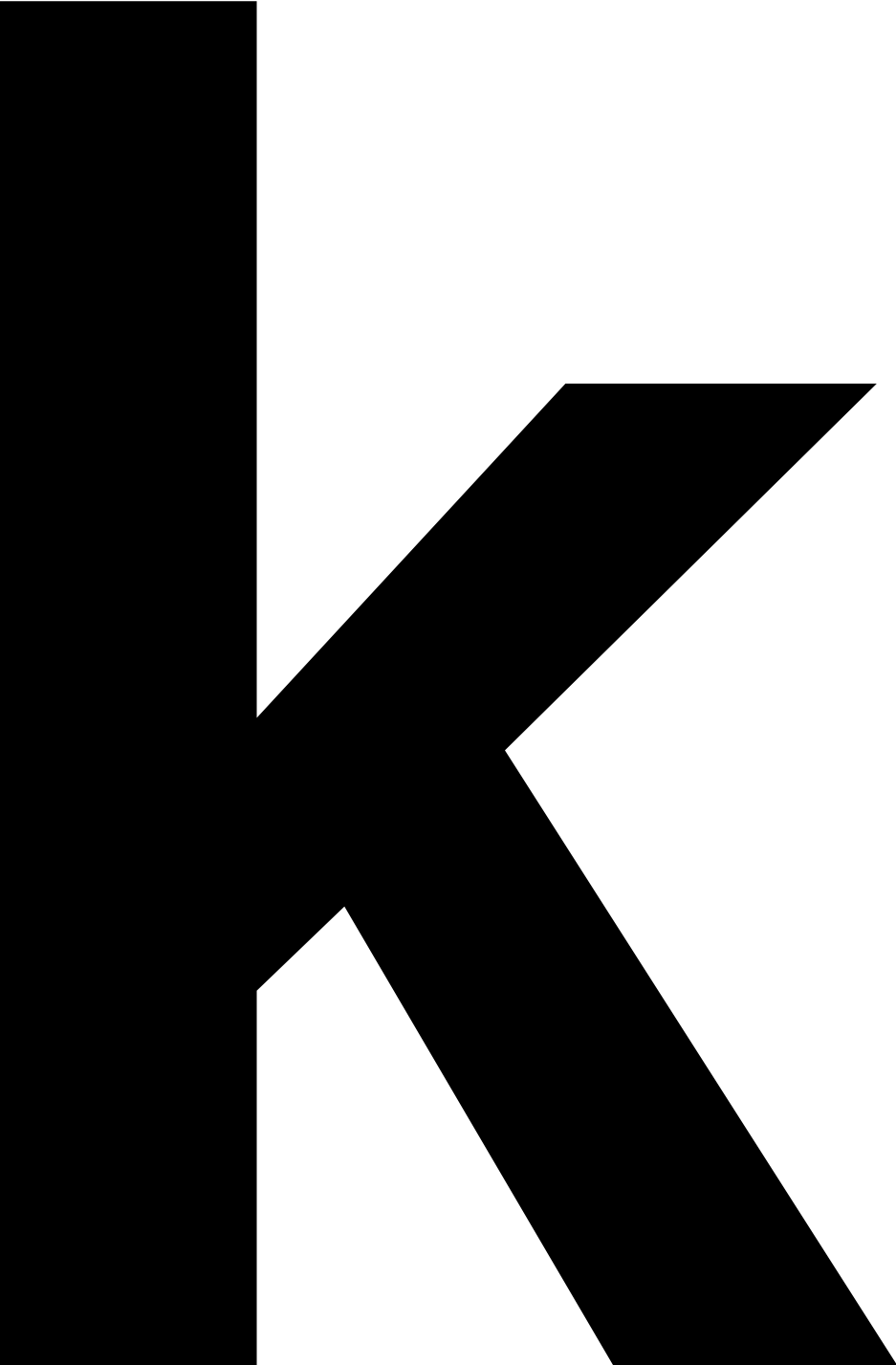


**e**



**n**









**e**







**n**



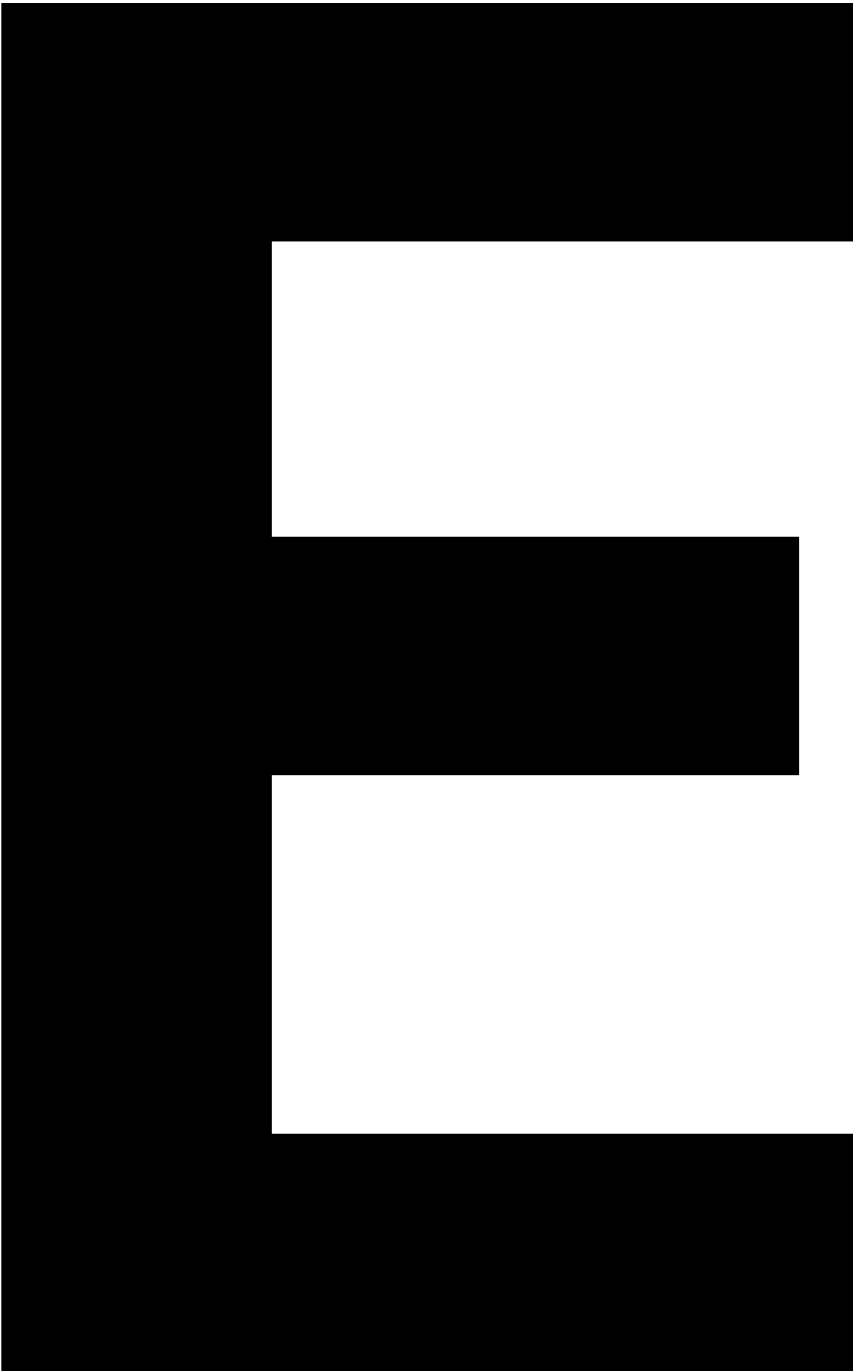
**e**





**n**











**n**









**J**



**u**



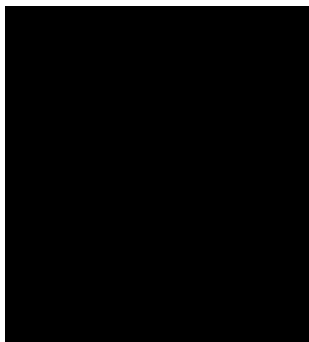
**S**





**S**







**w**



**5a**



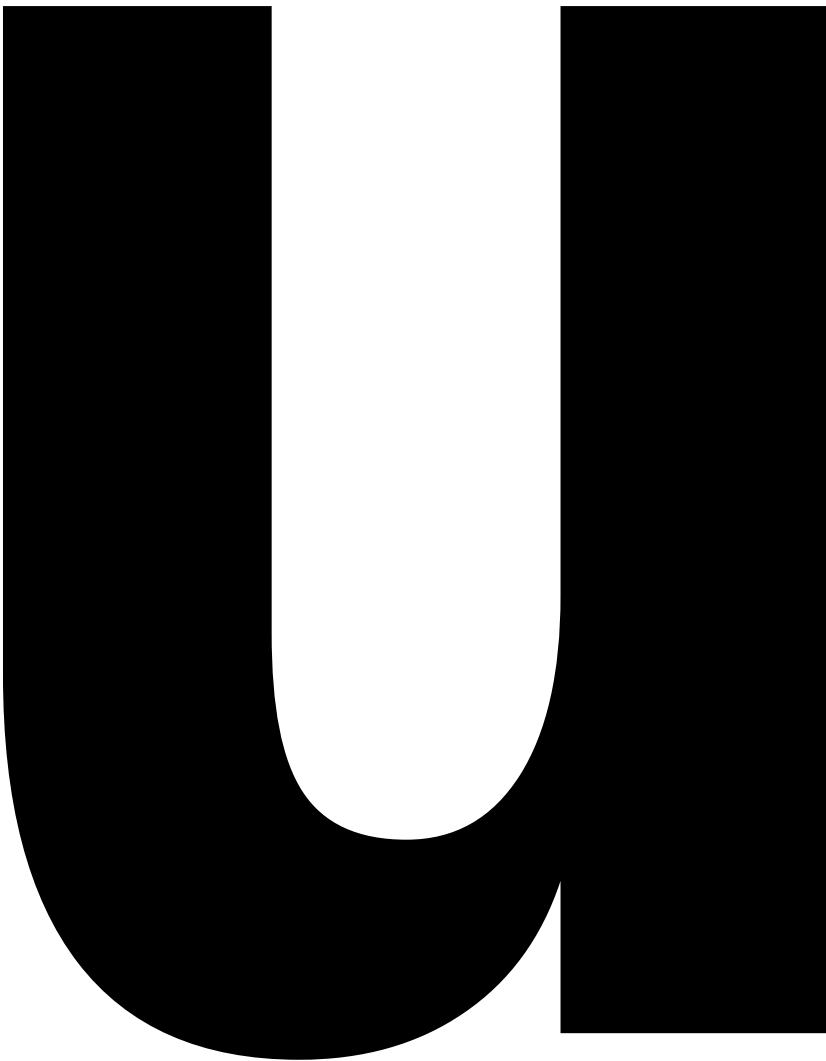


**S**











**r**





**e**







**n**



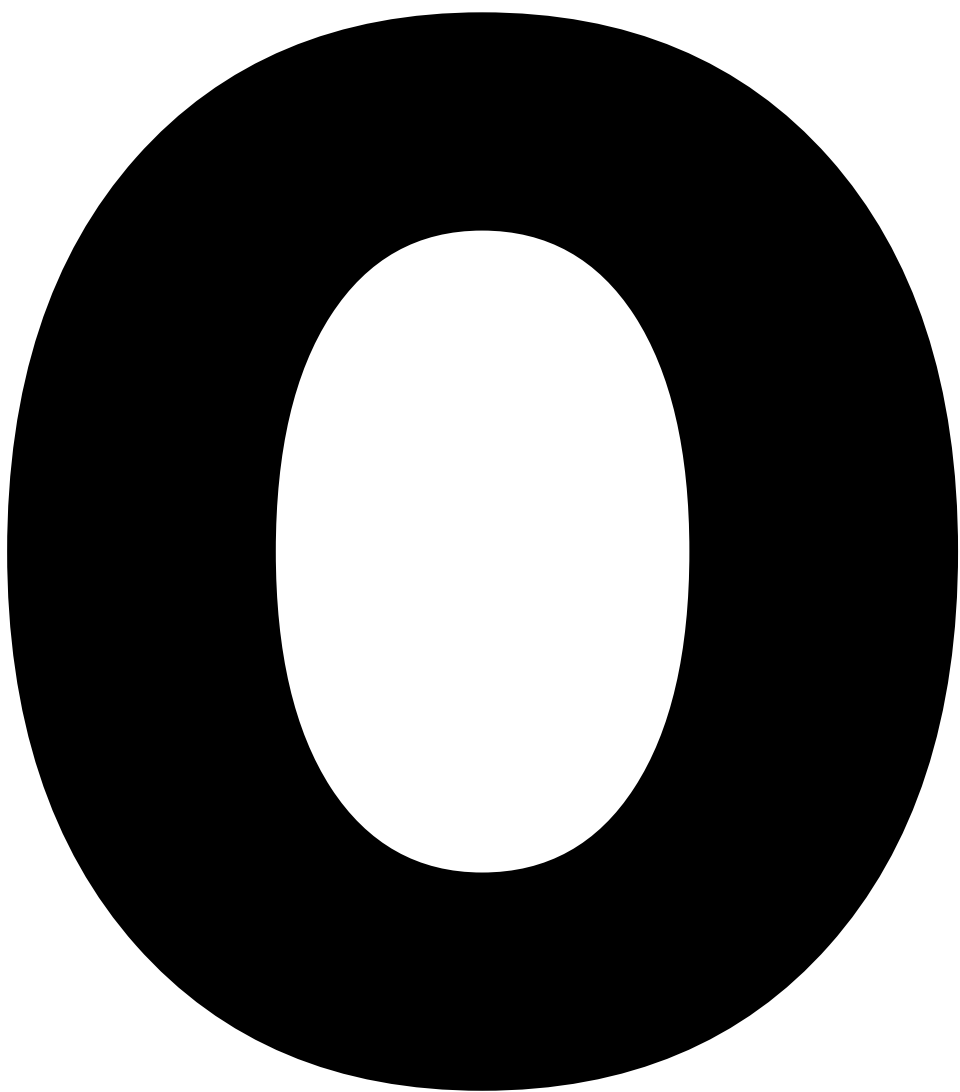
e













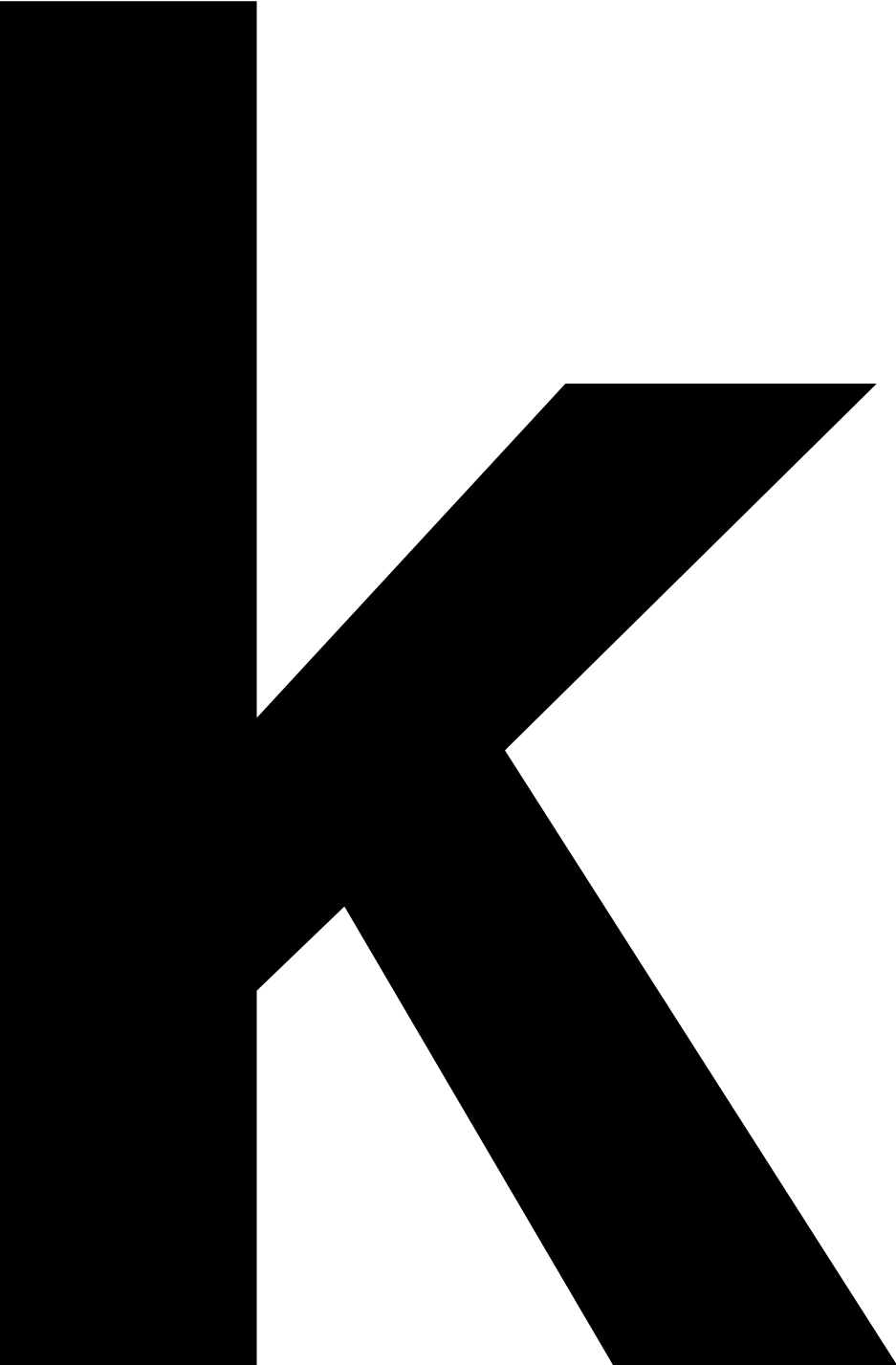
**Q**



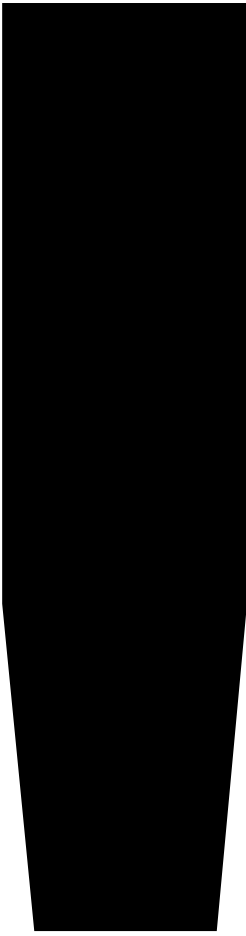








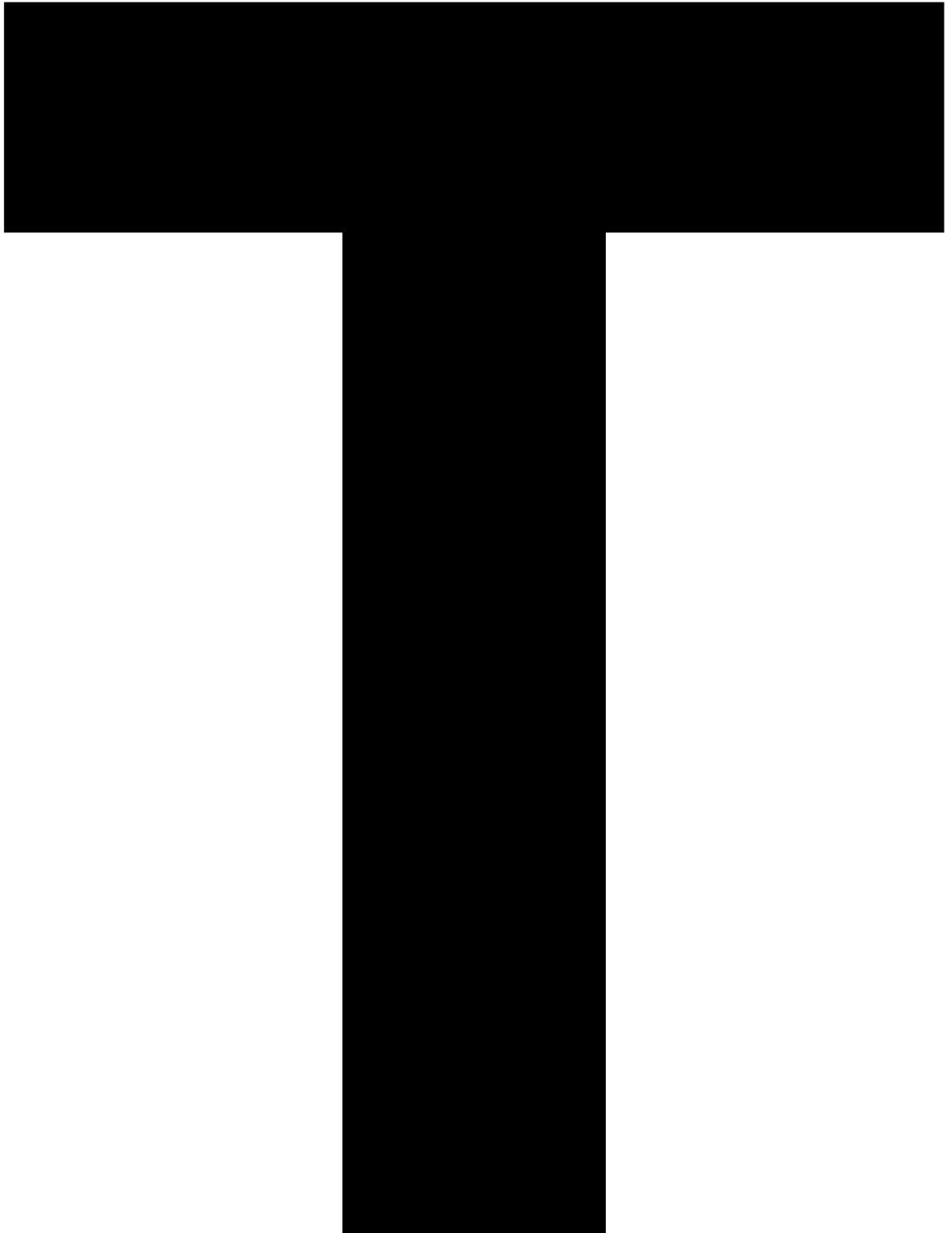






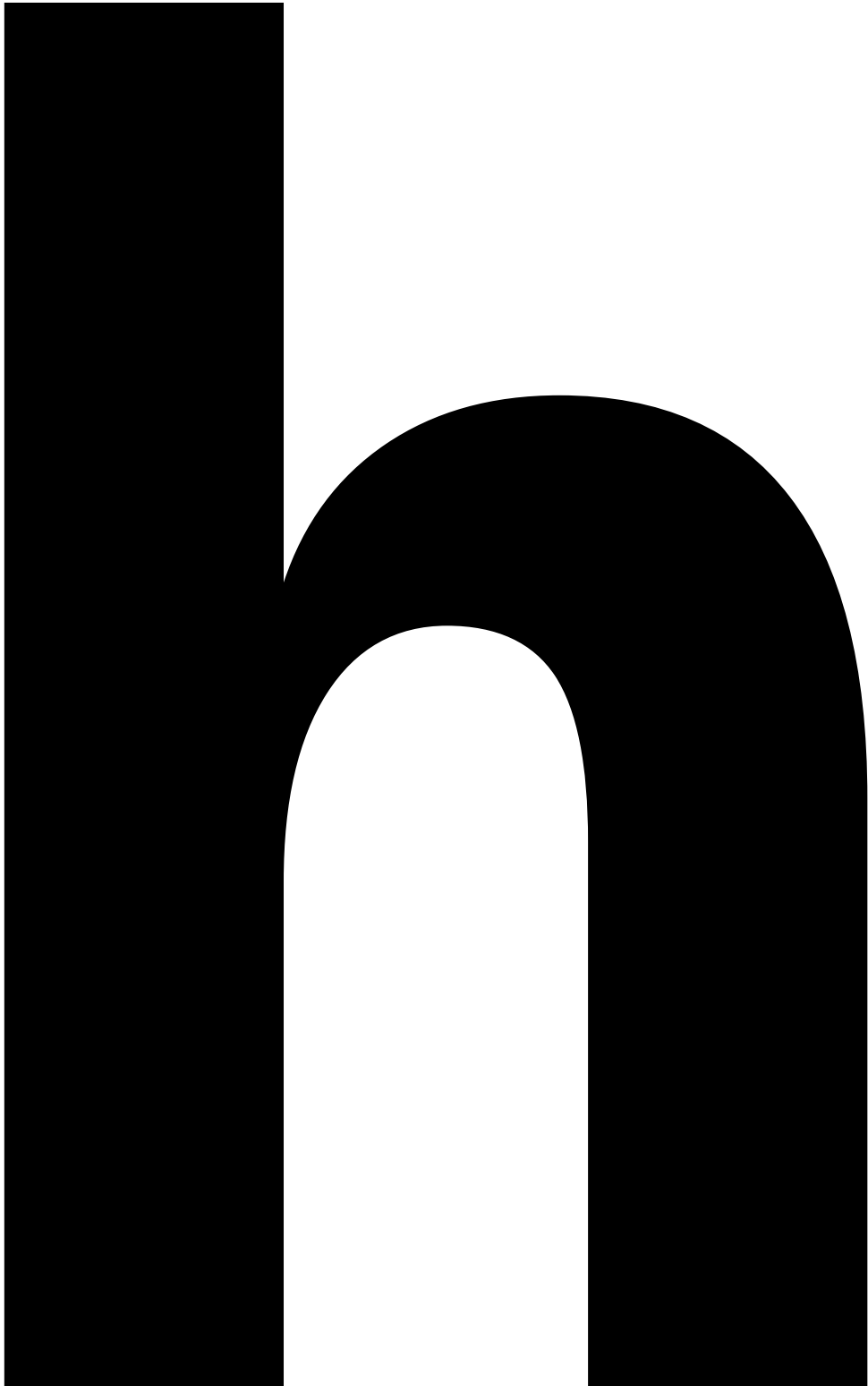














**e**



S



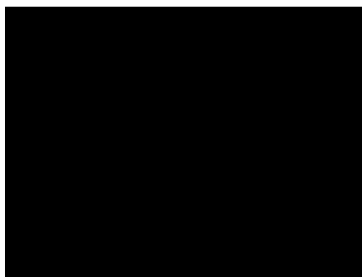
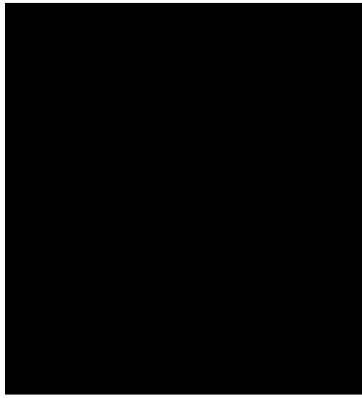
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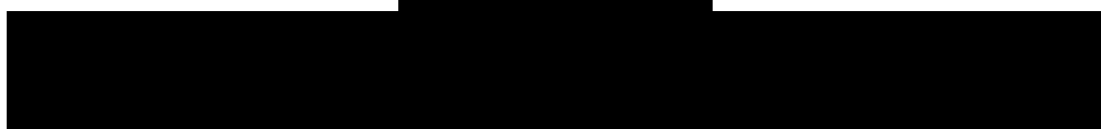
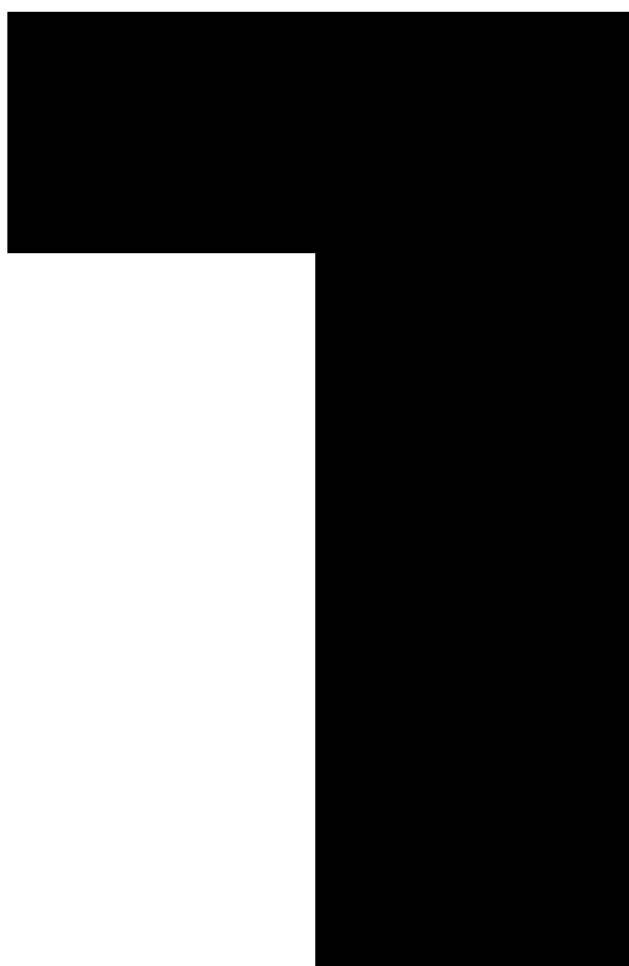
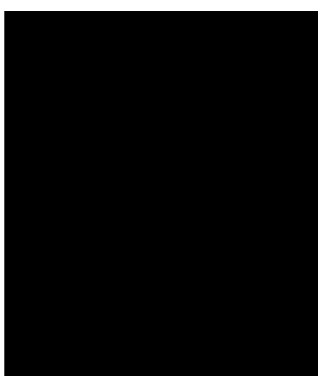






**W**













**ro**



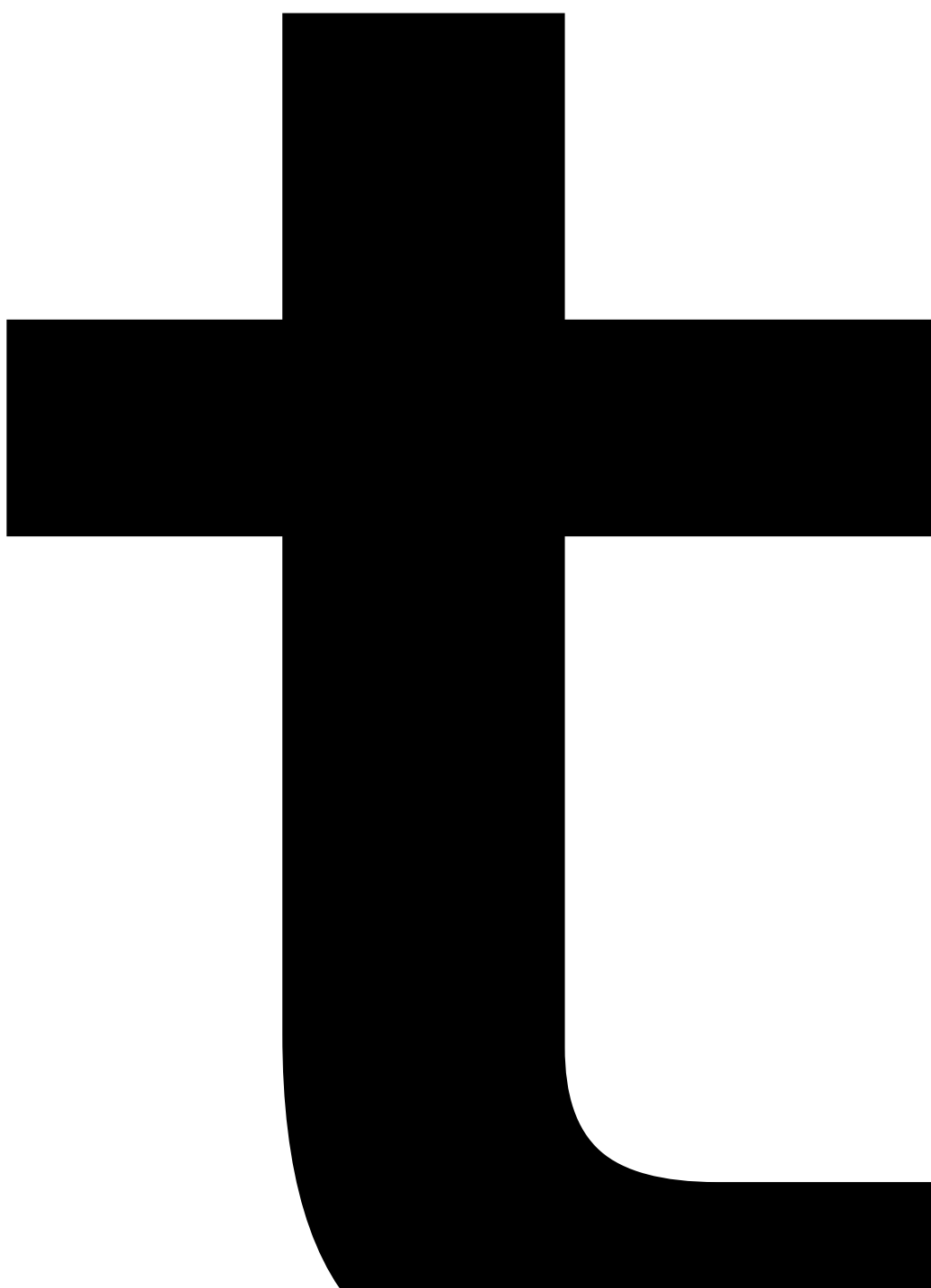
U



S



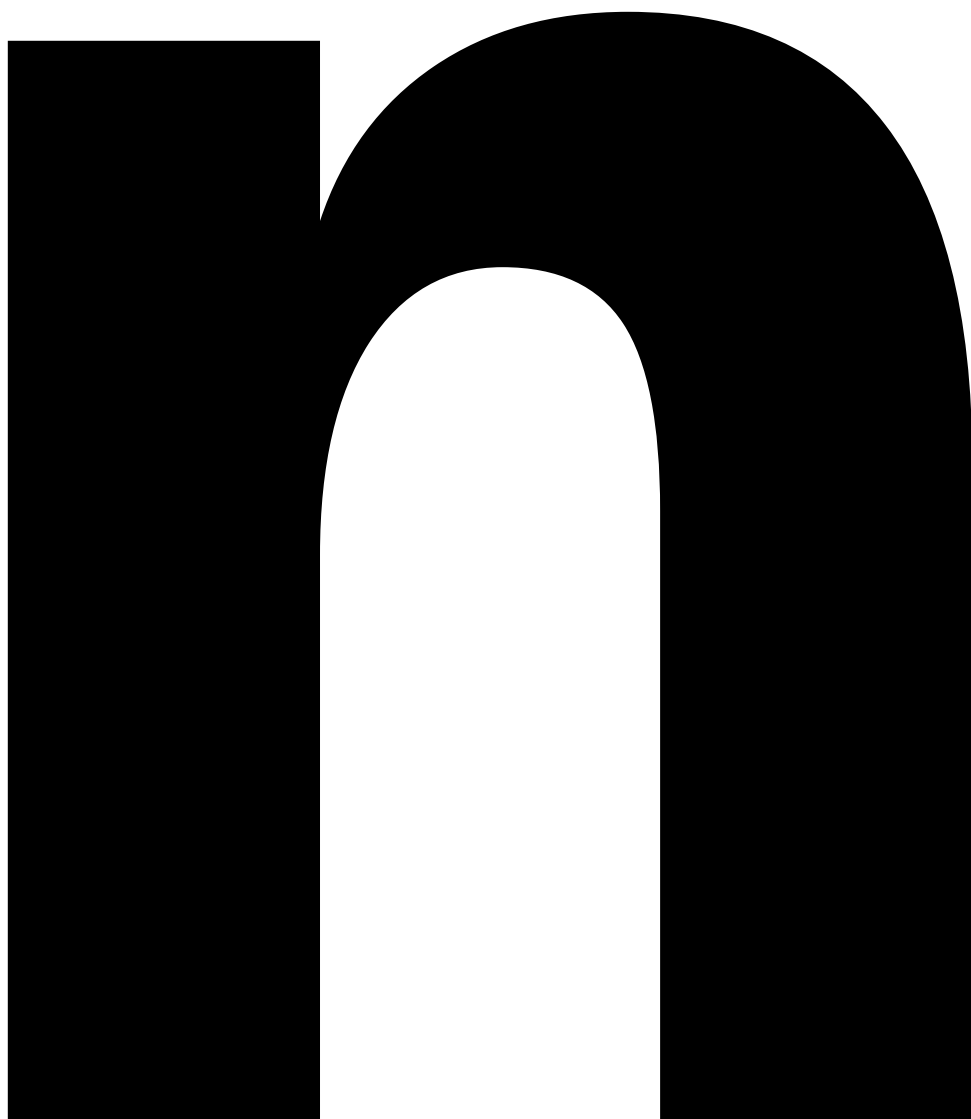






**e**



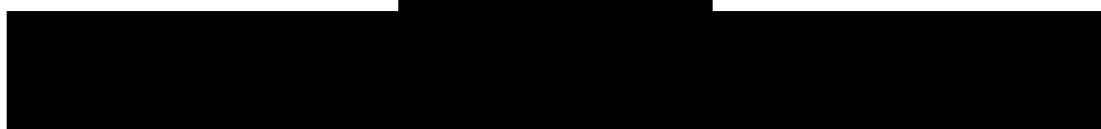
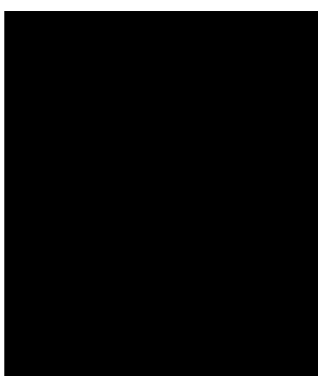




**Q**







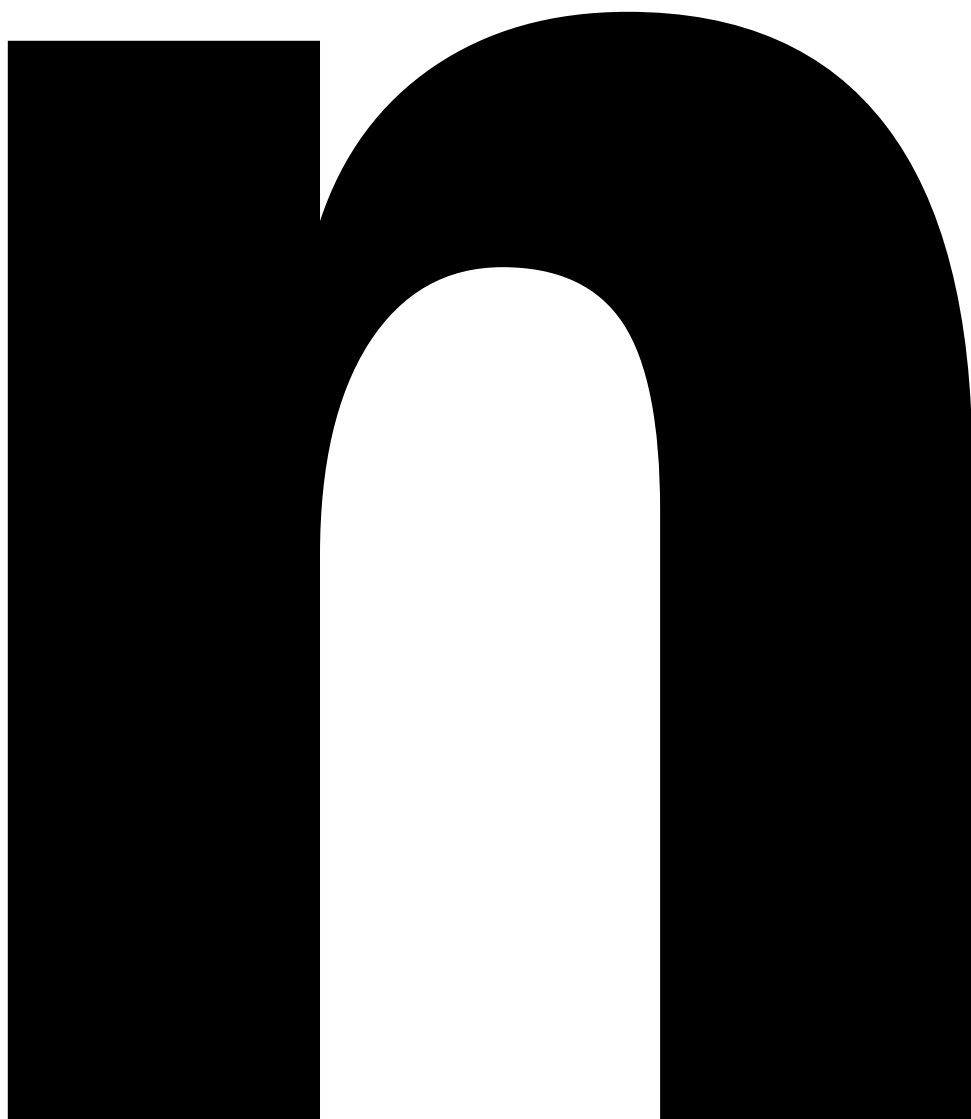


**Q**



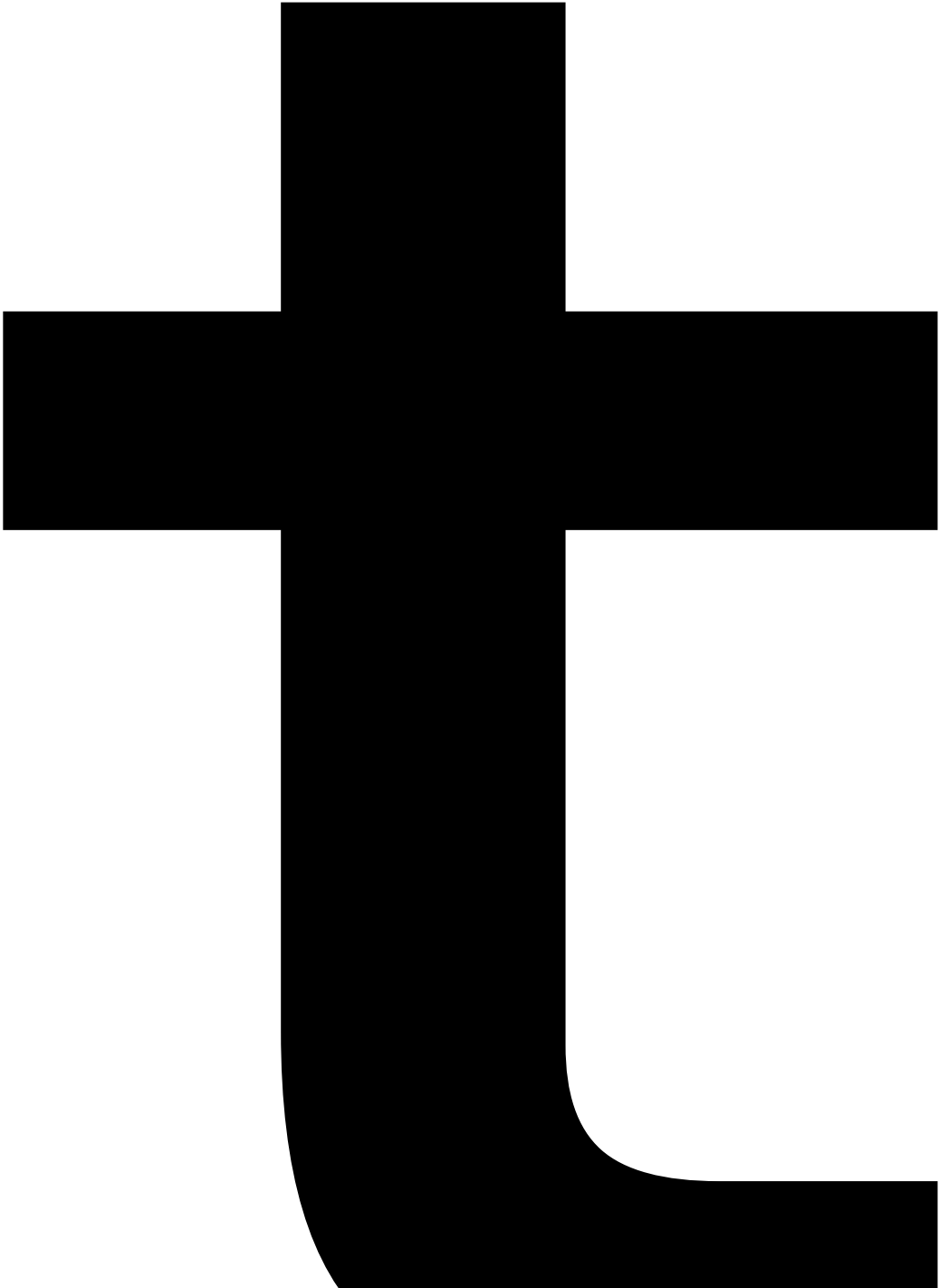
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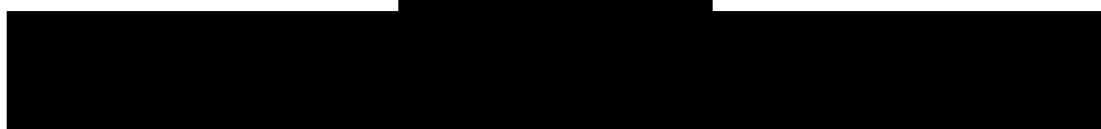
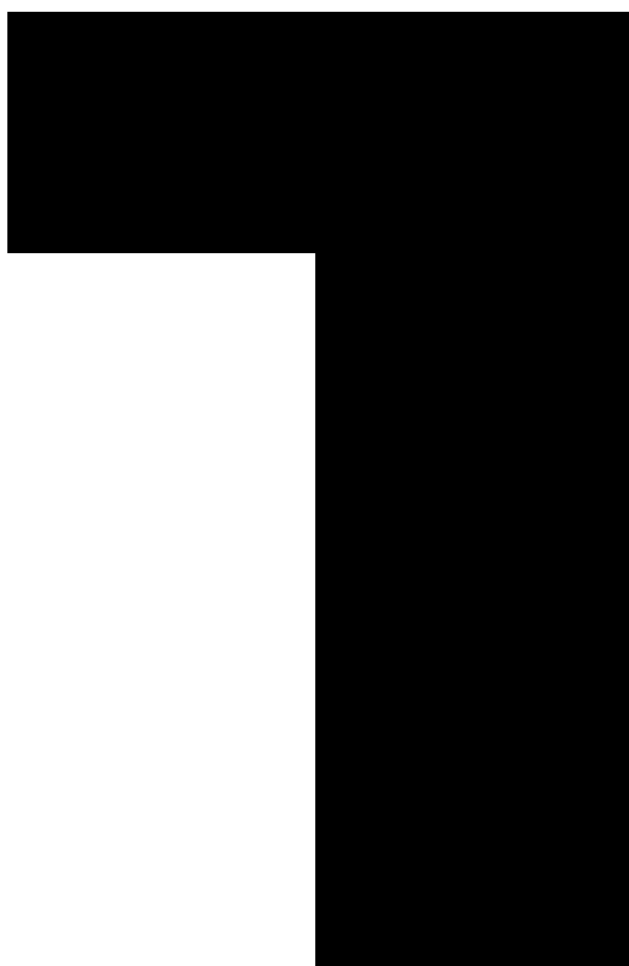
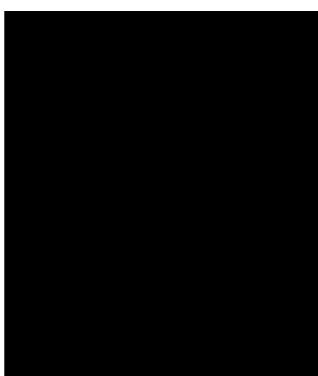








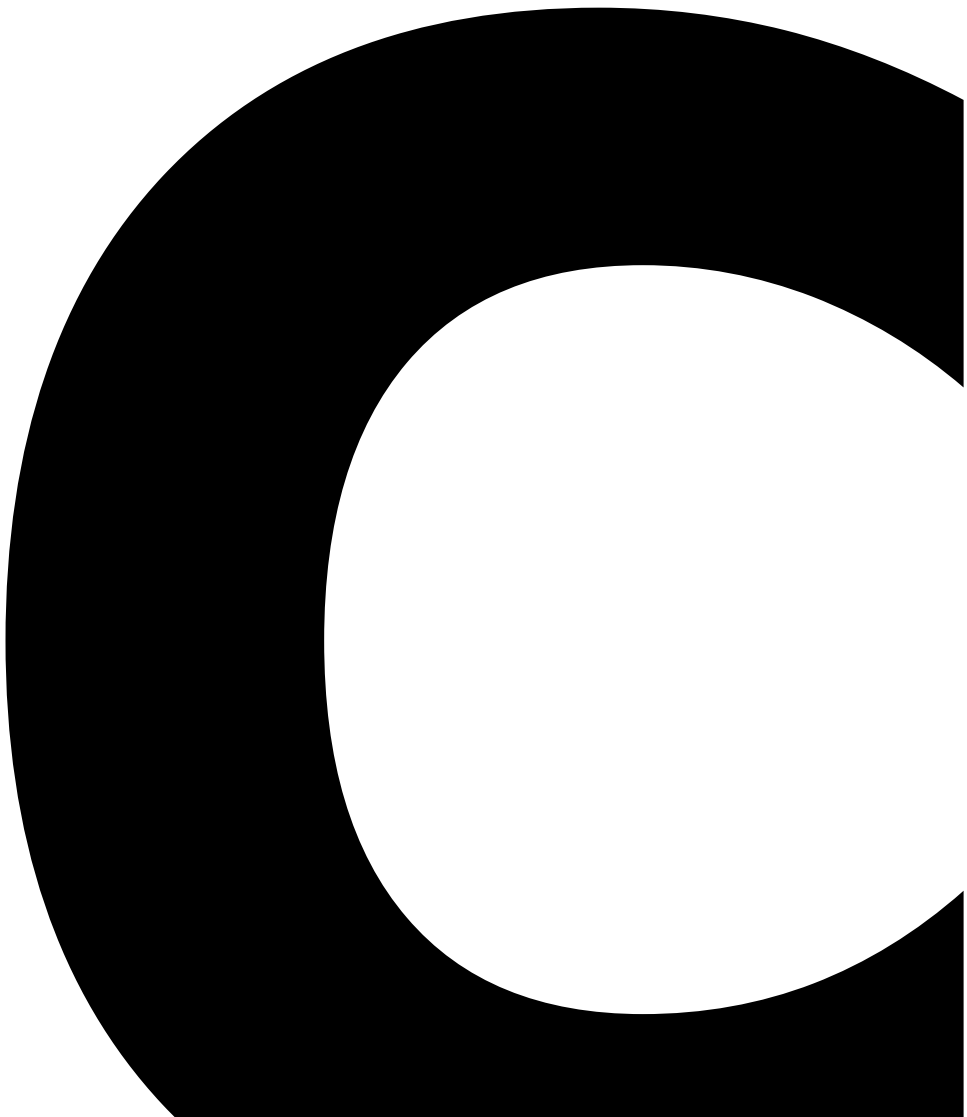






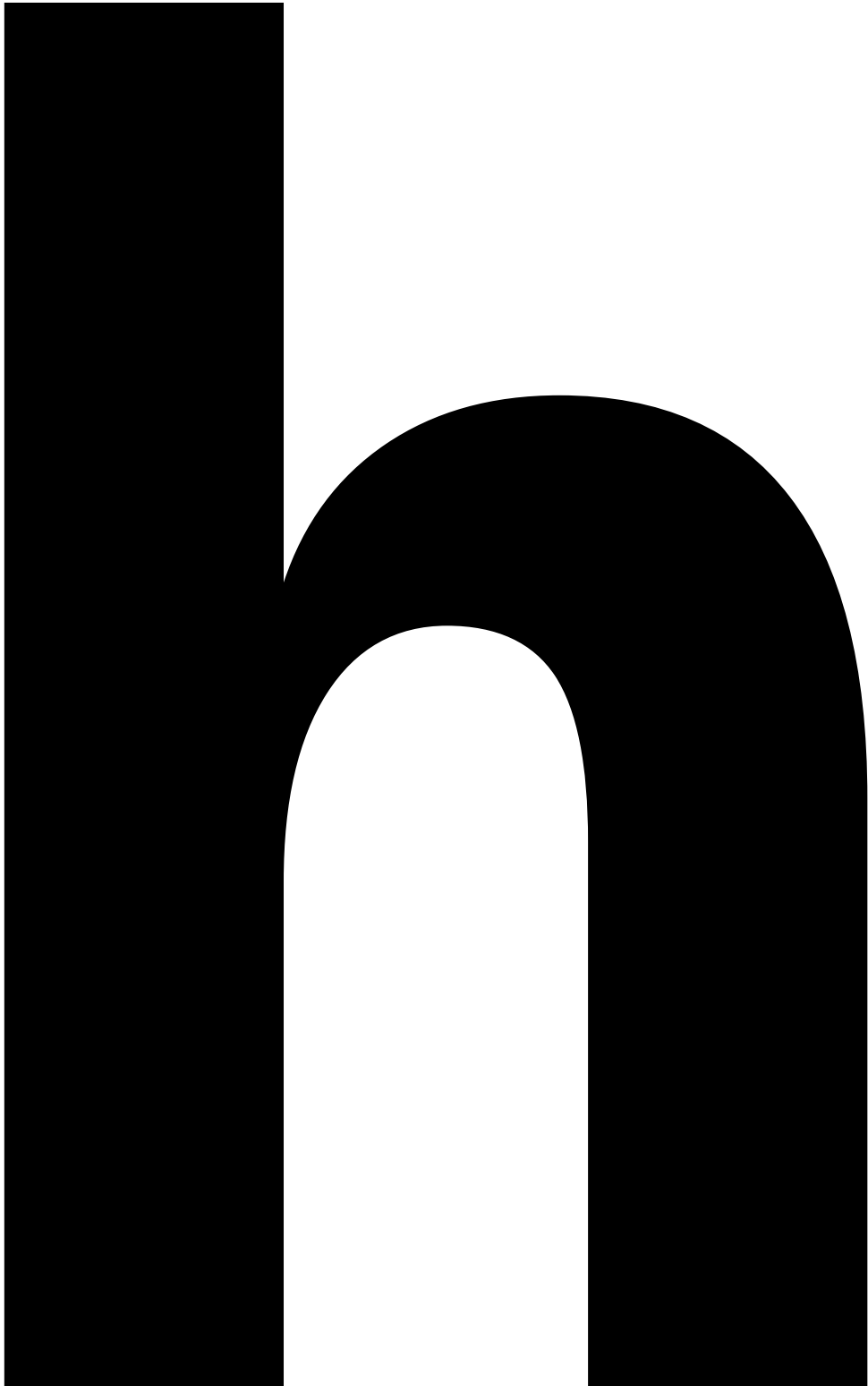
S













**e**



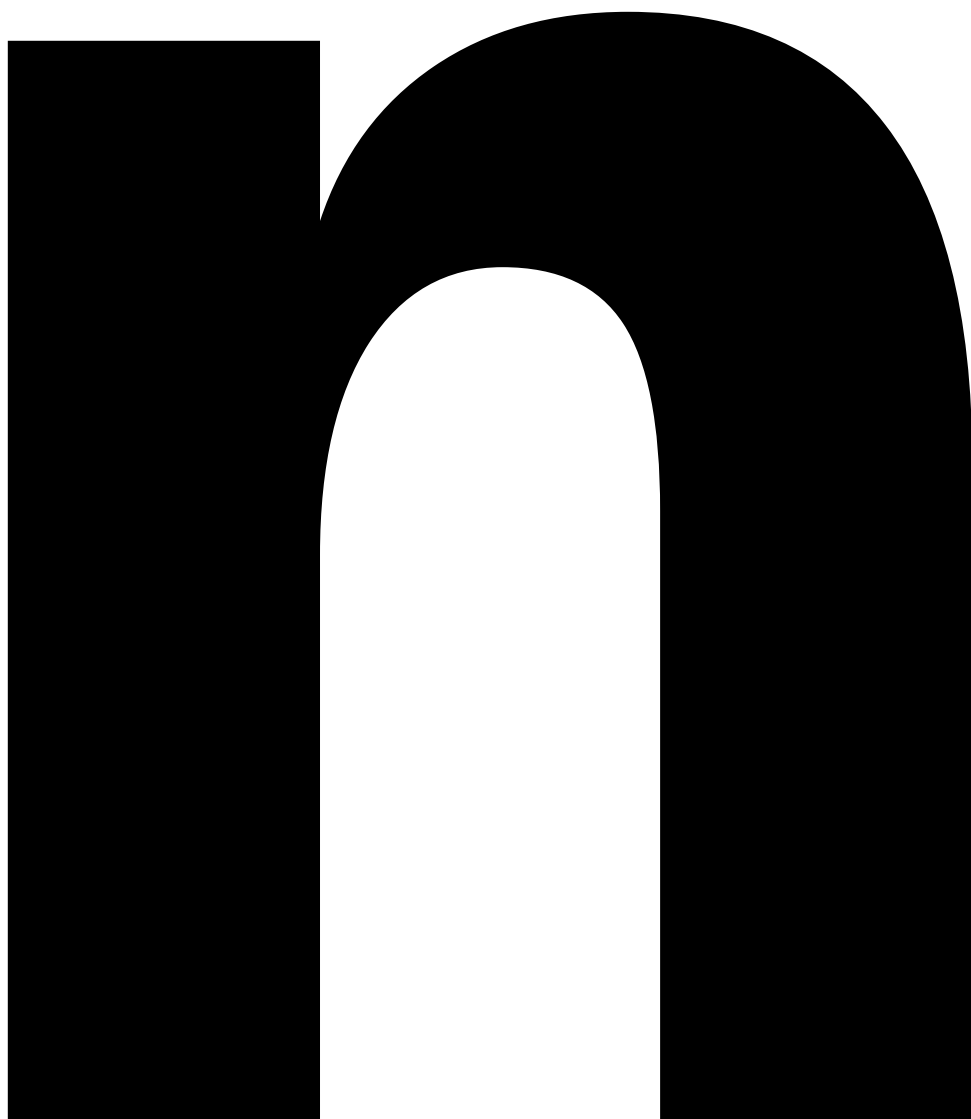
**M**



**e**







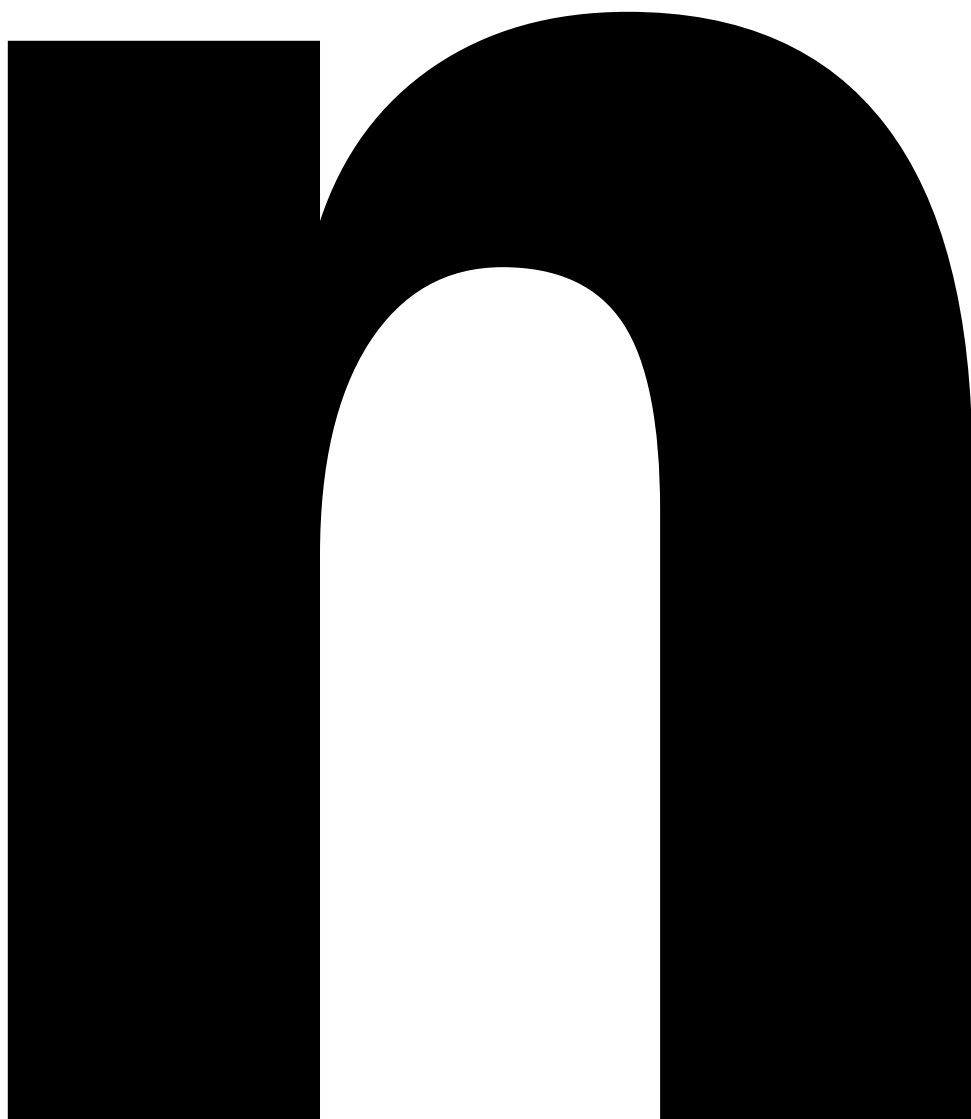


**Q**



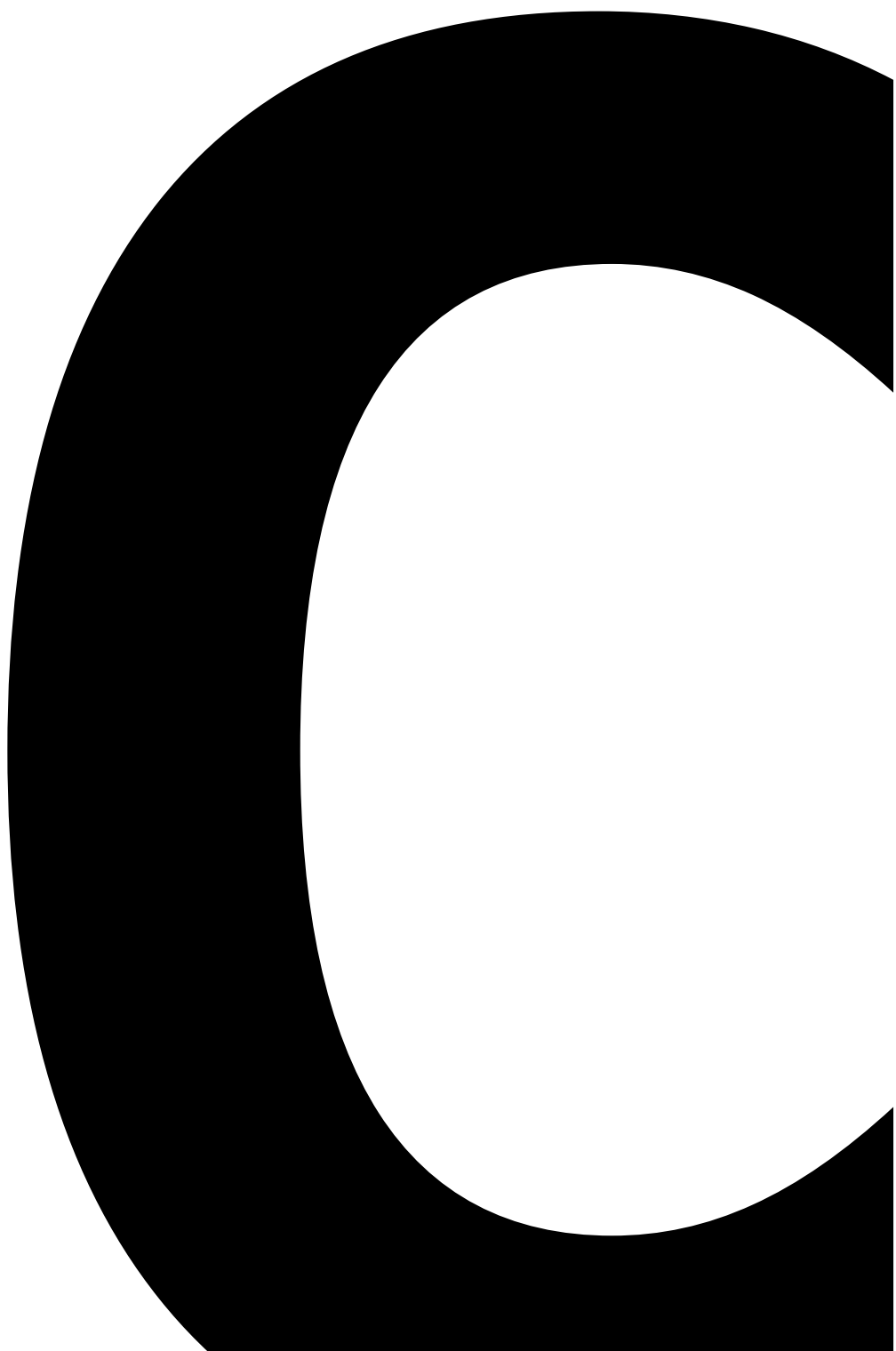
**e**



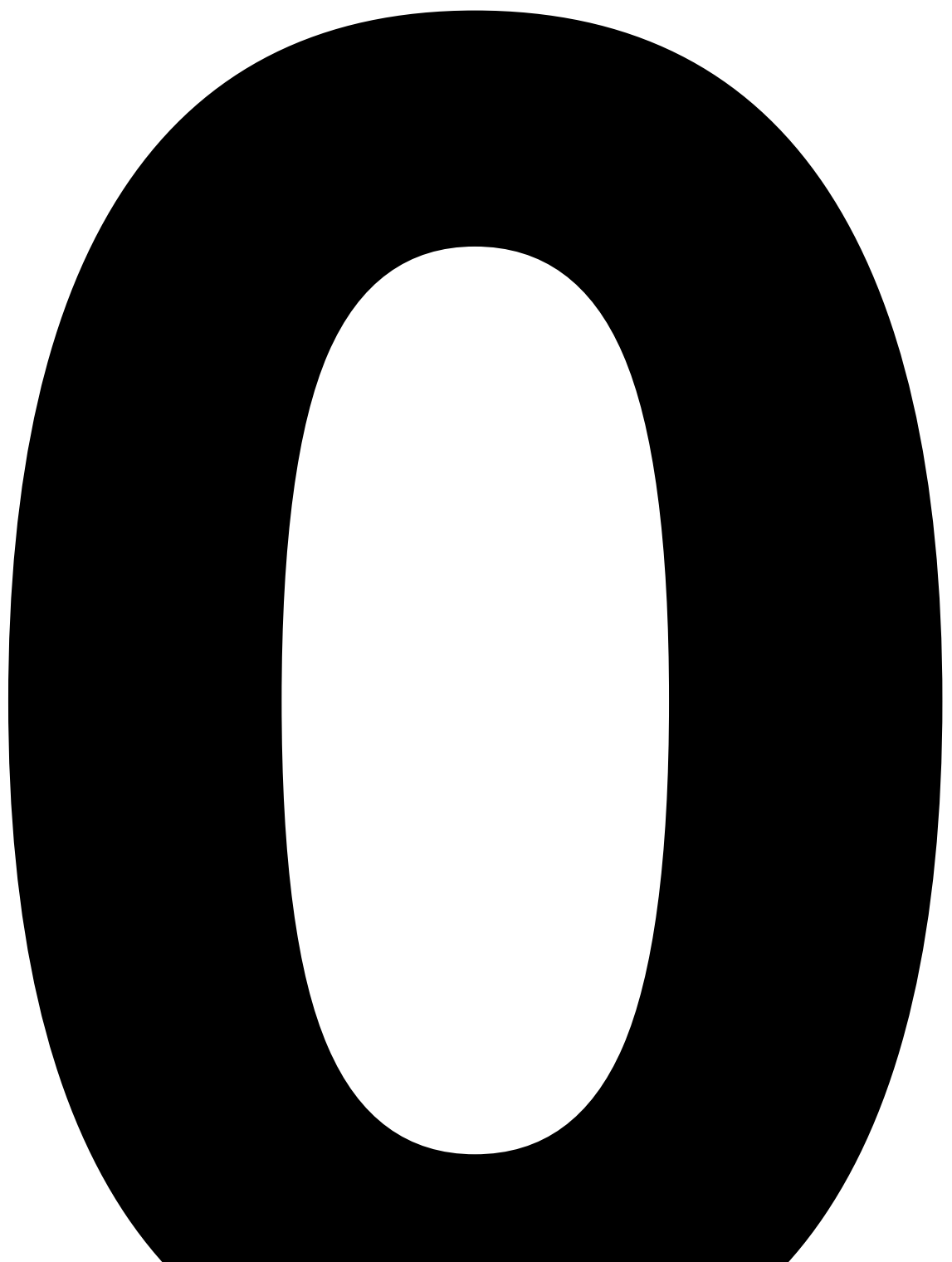








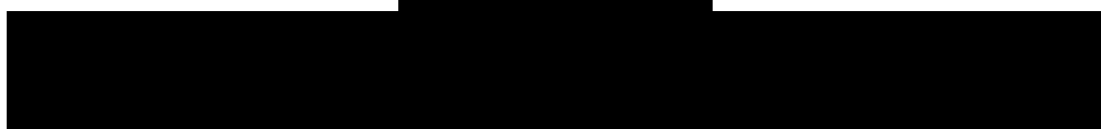
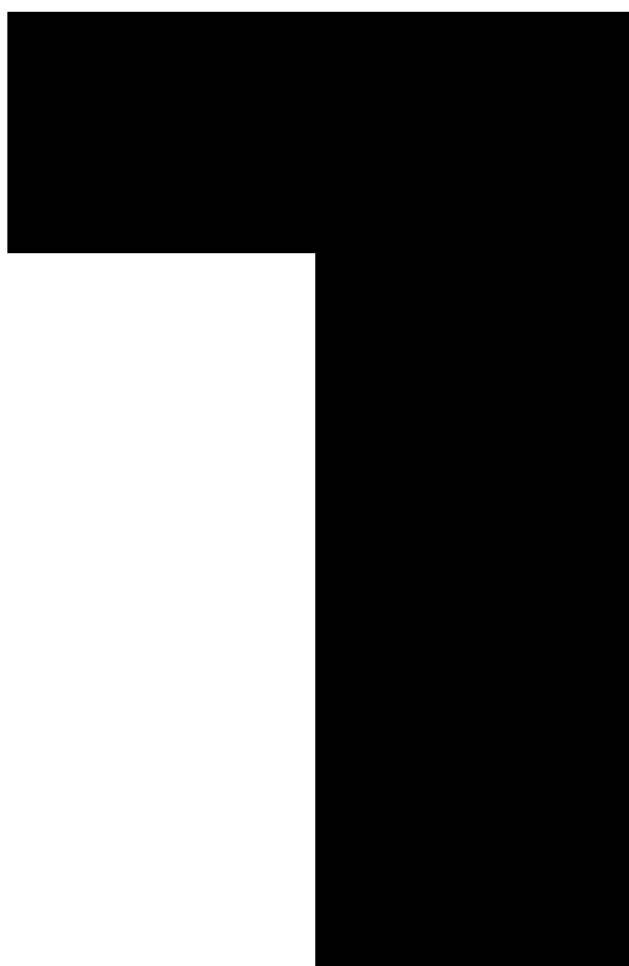
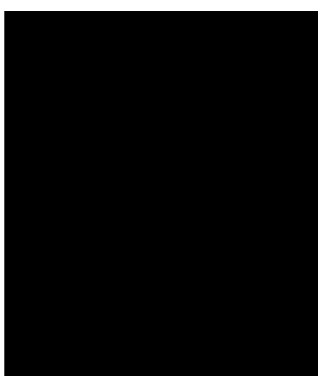






2







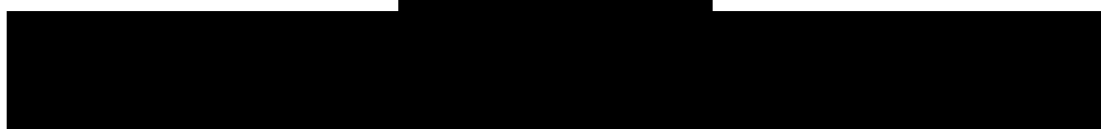
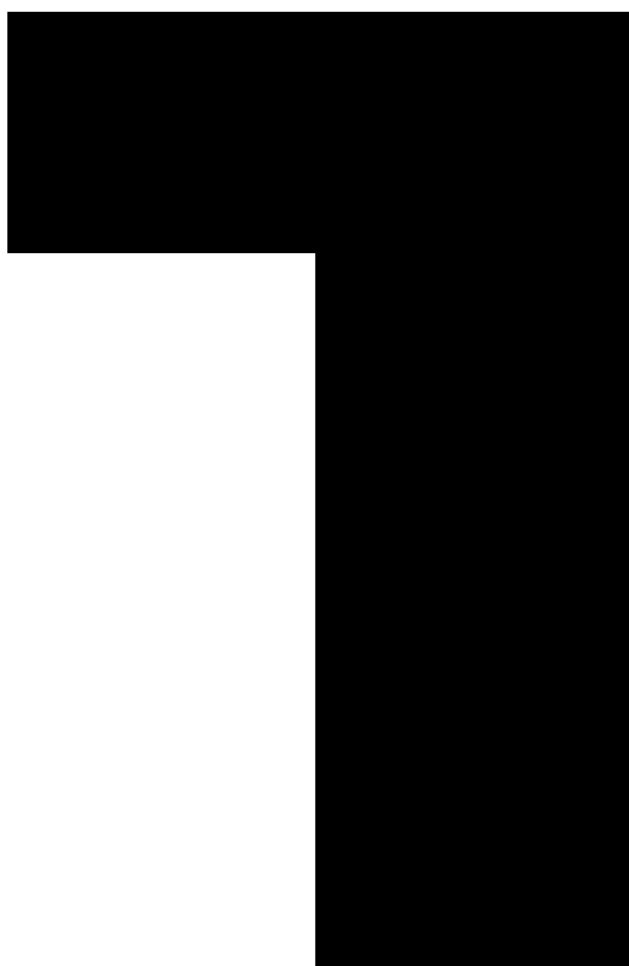
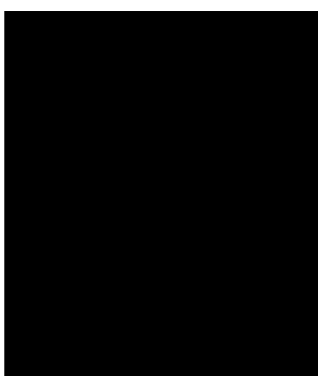


**u**



Q



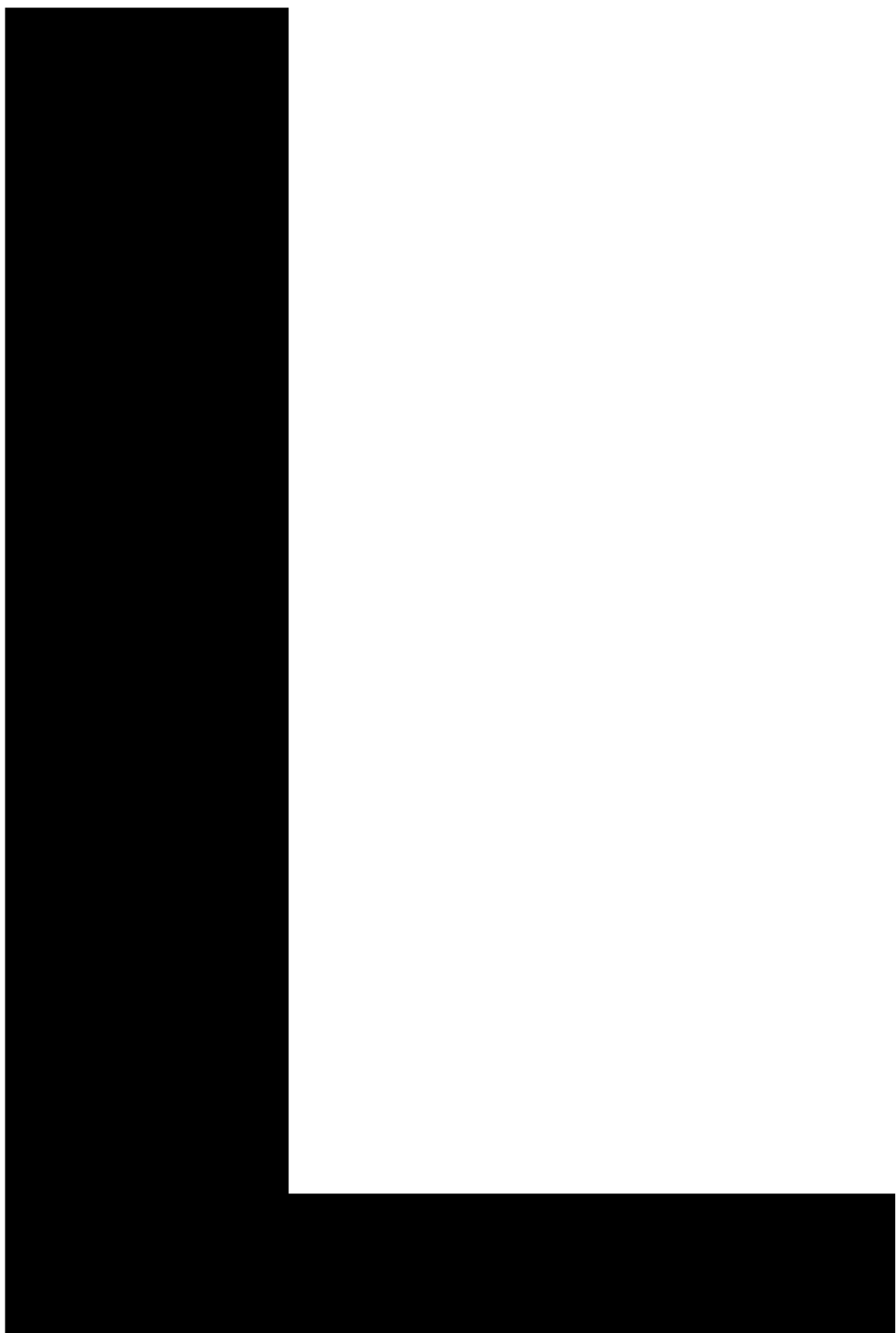




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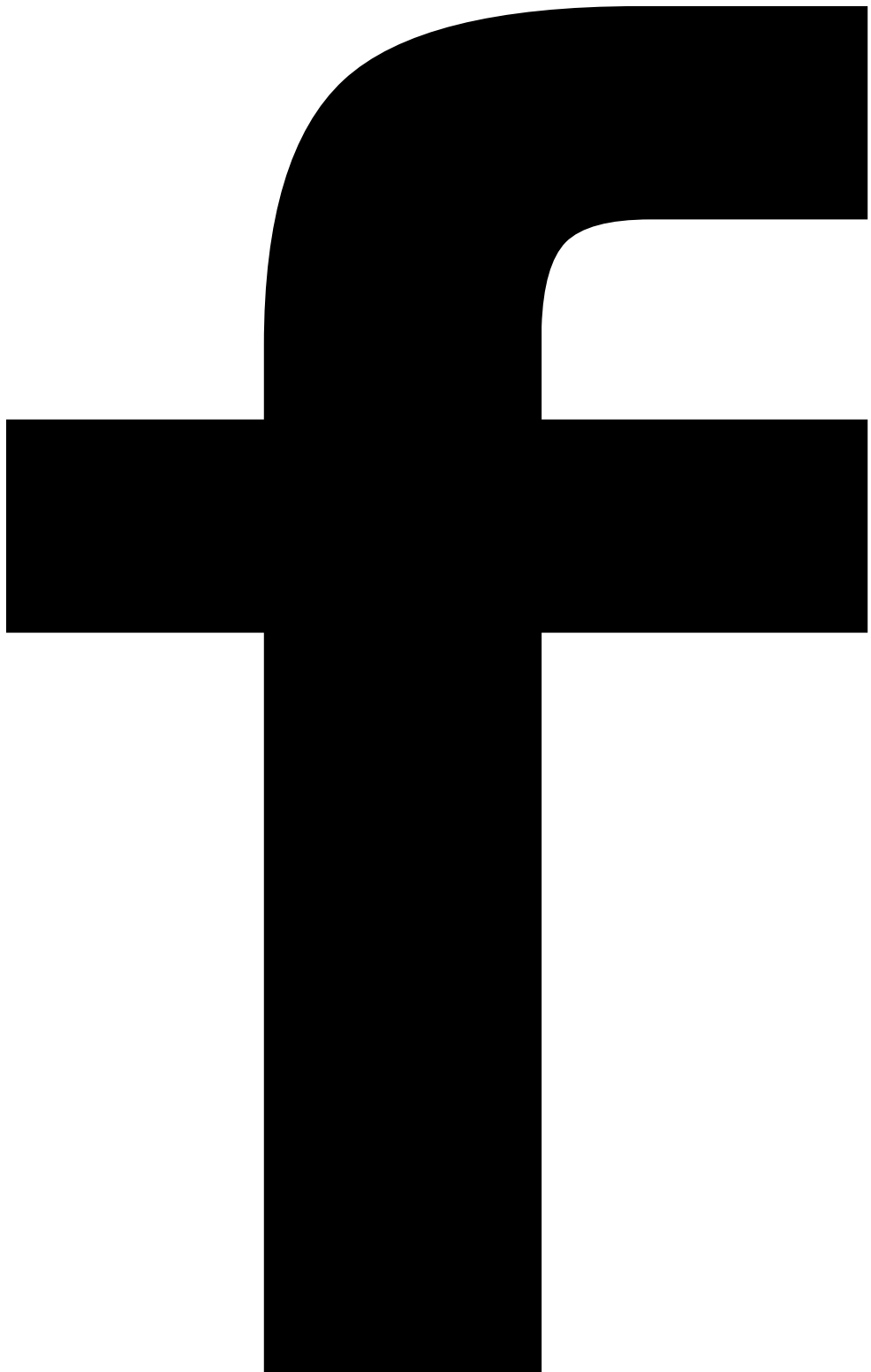




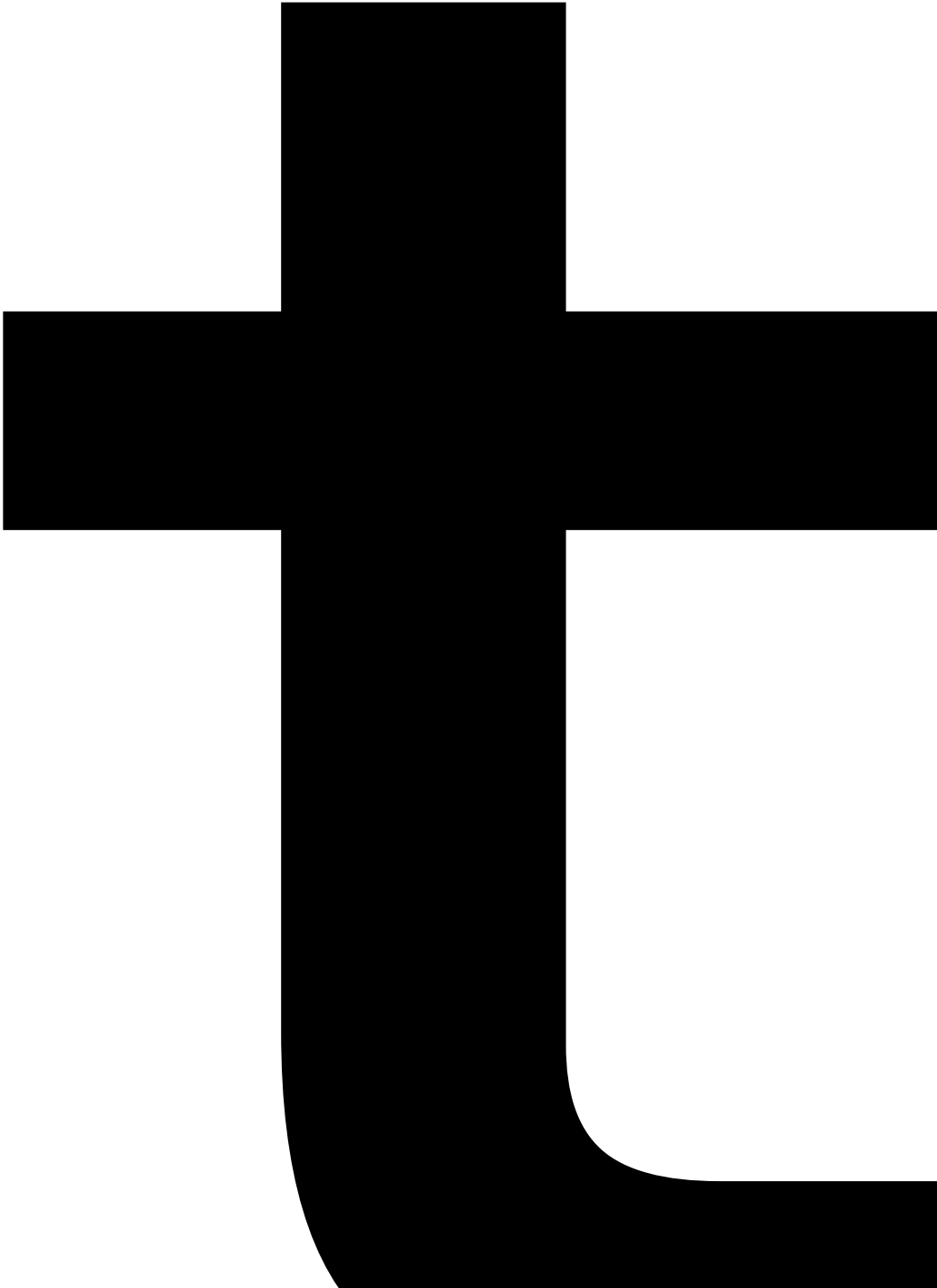


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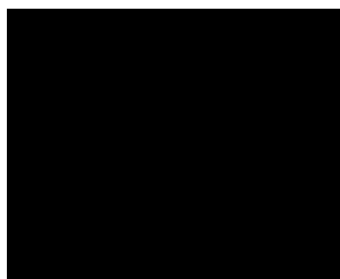














Q



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S





**V**



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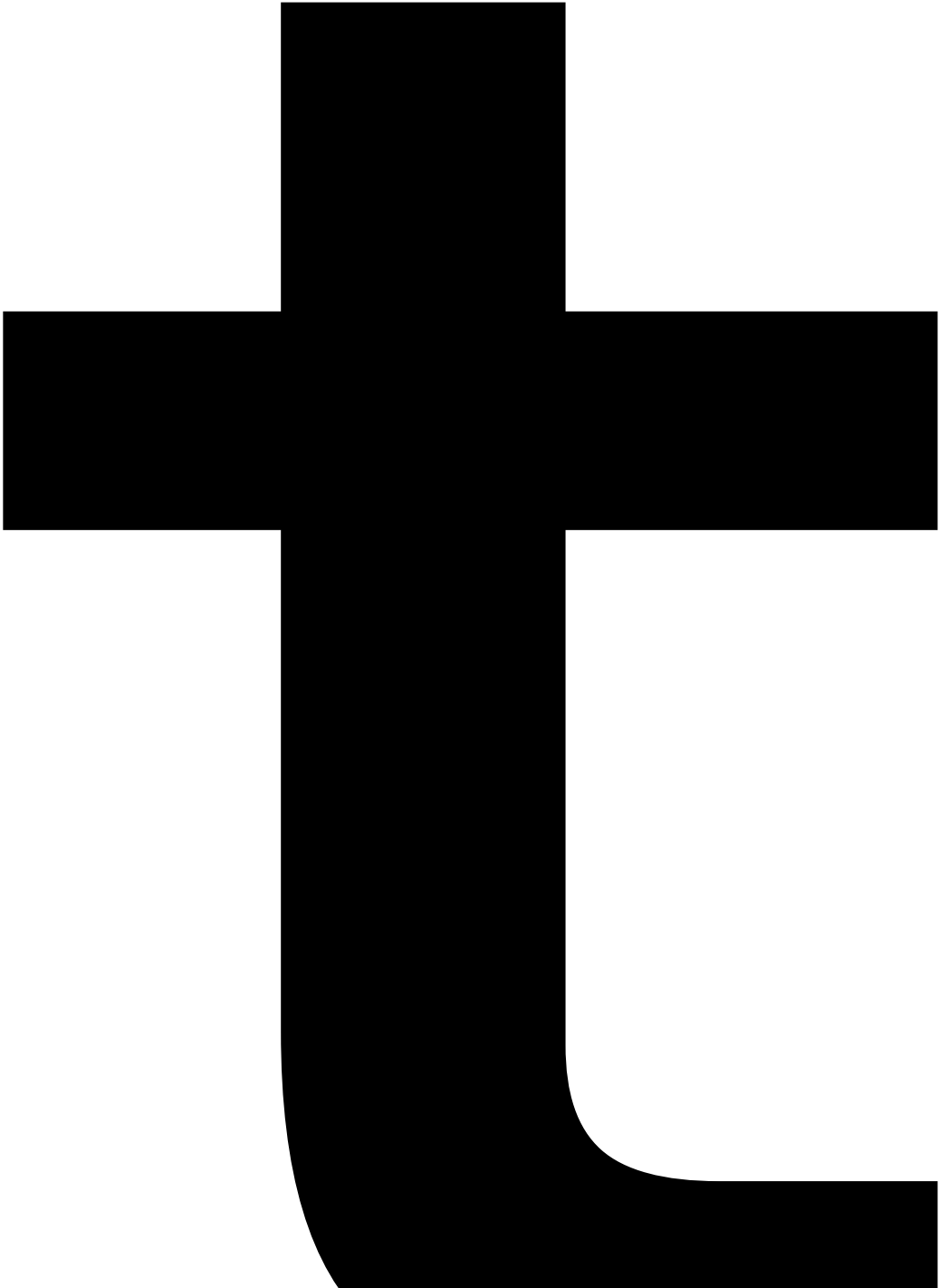




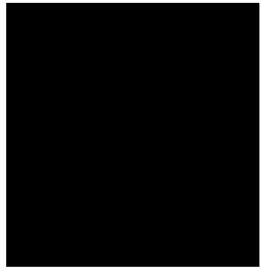
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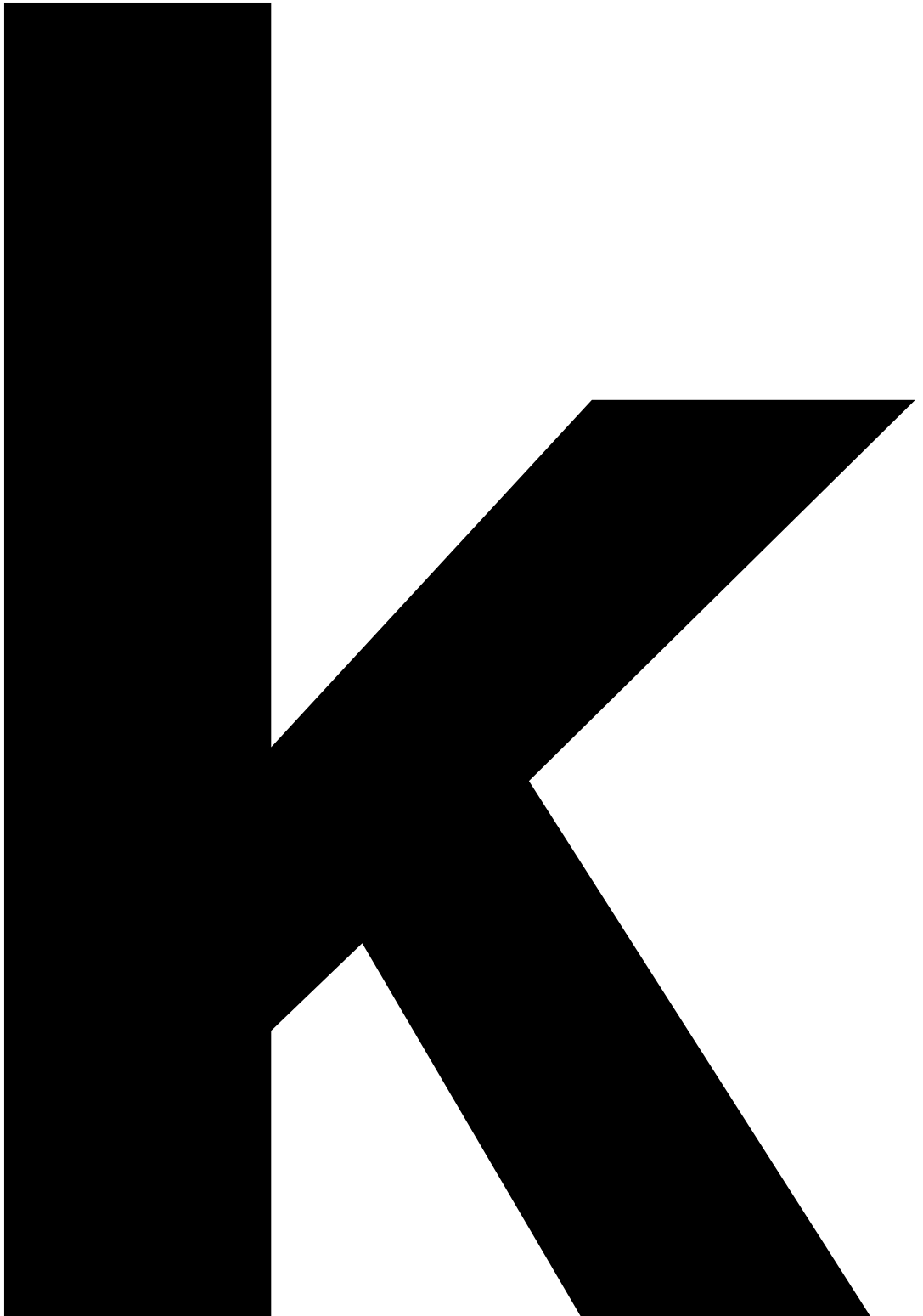






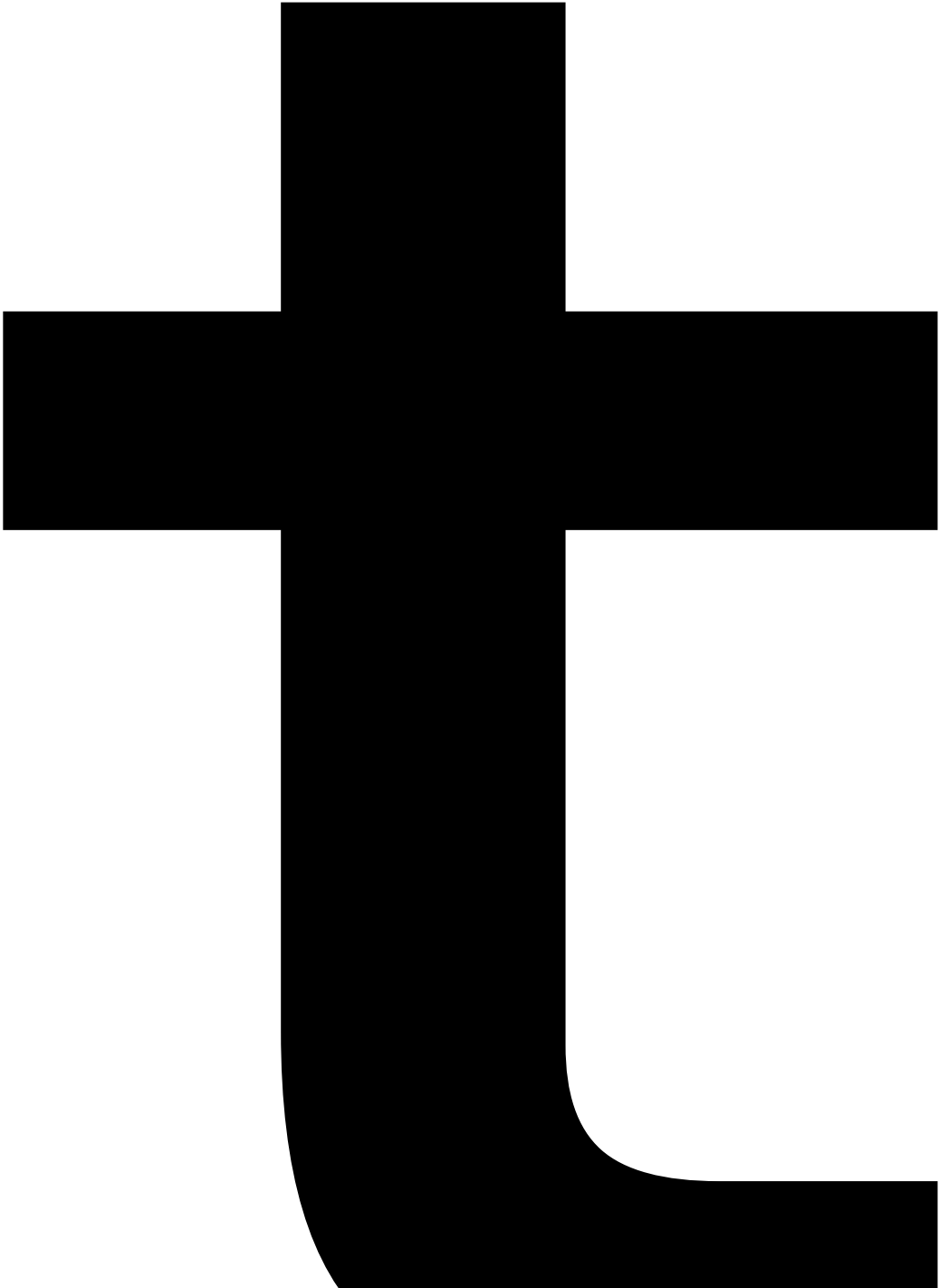












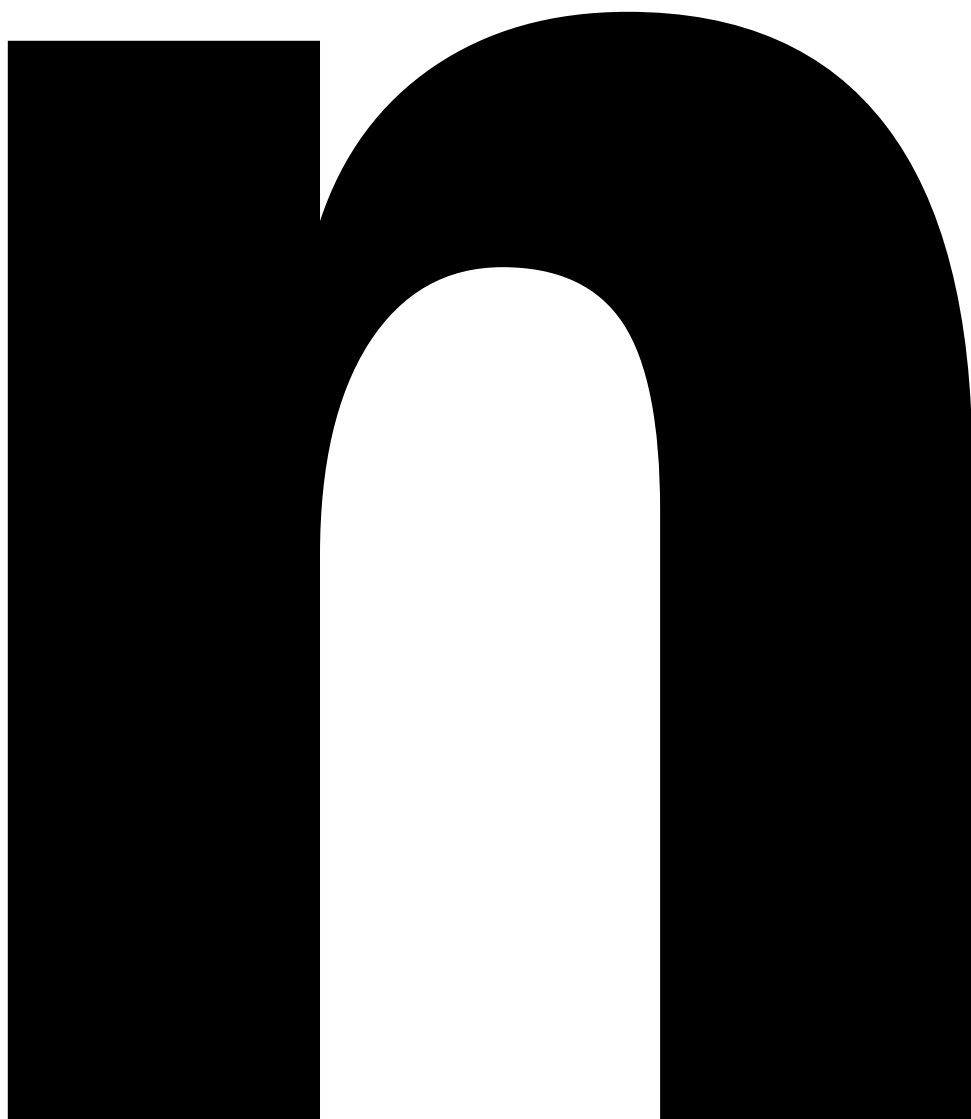


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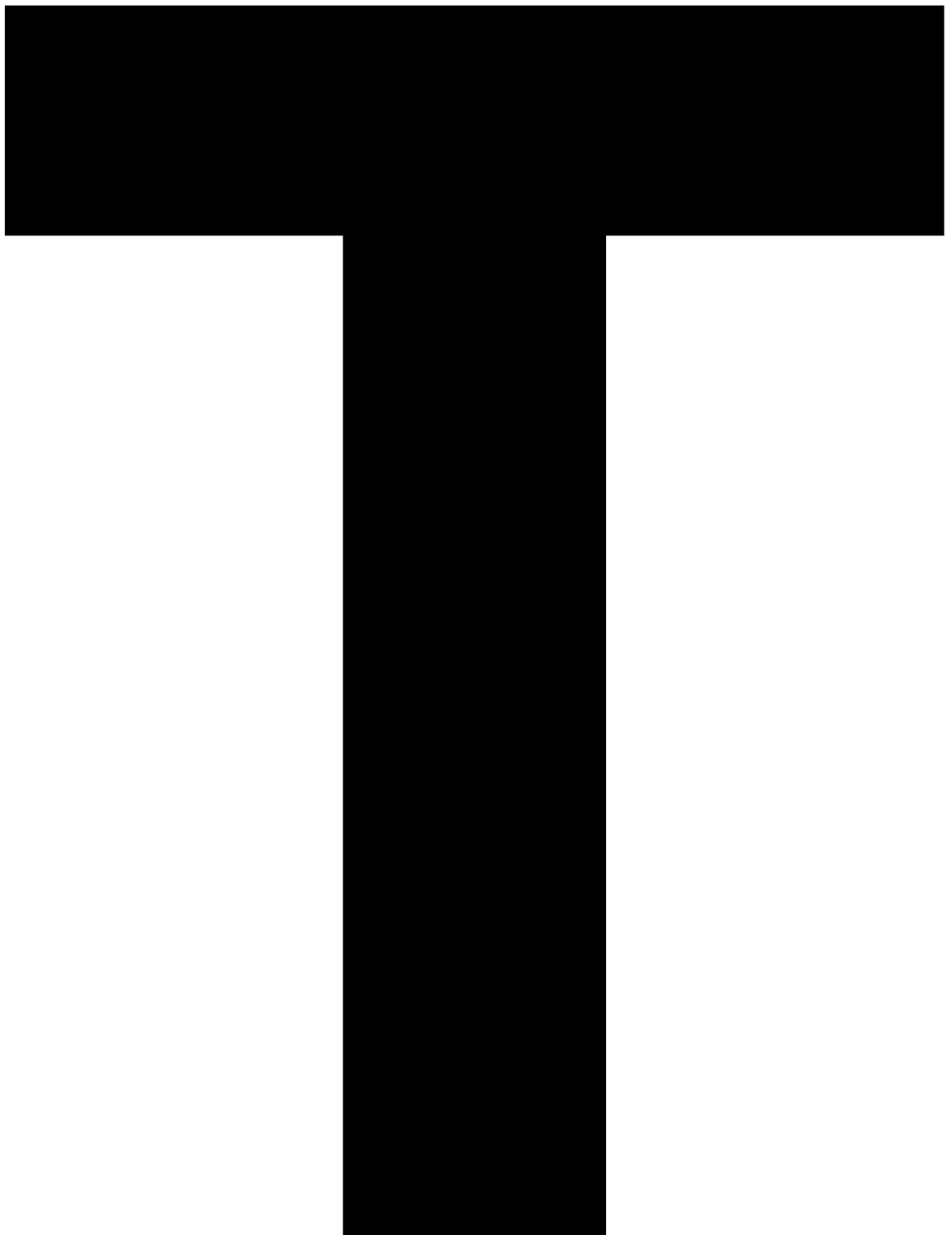
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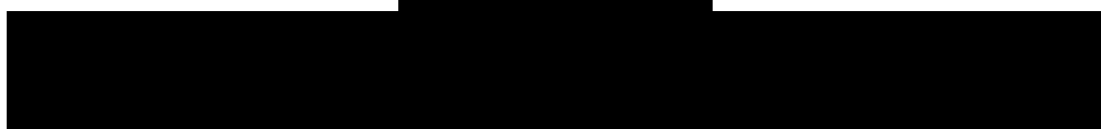
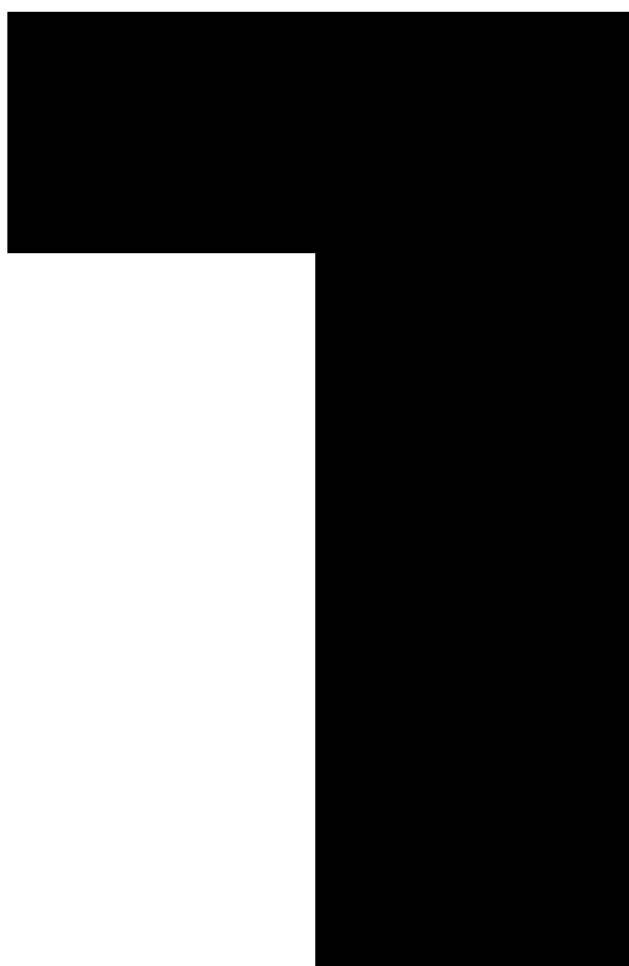
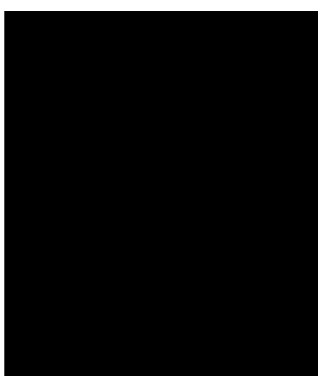






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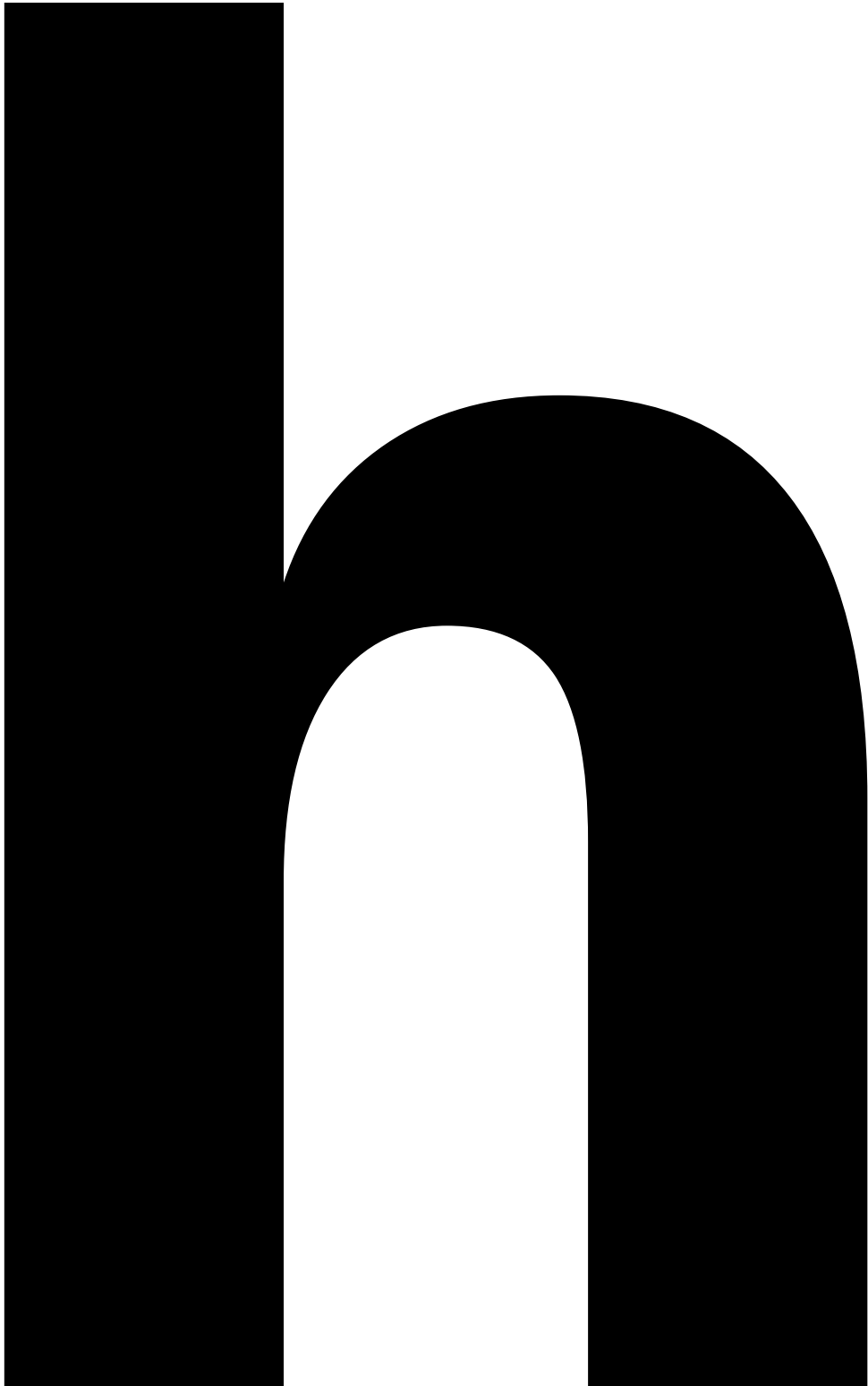






**bo**







**S**



U



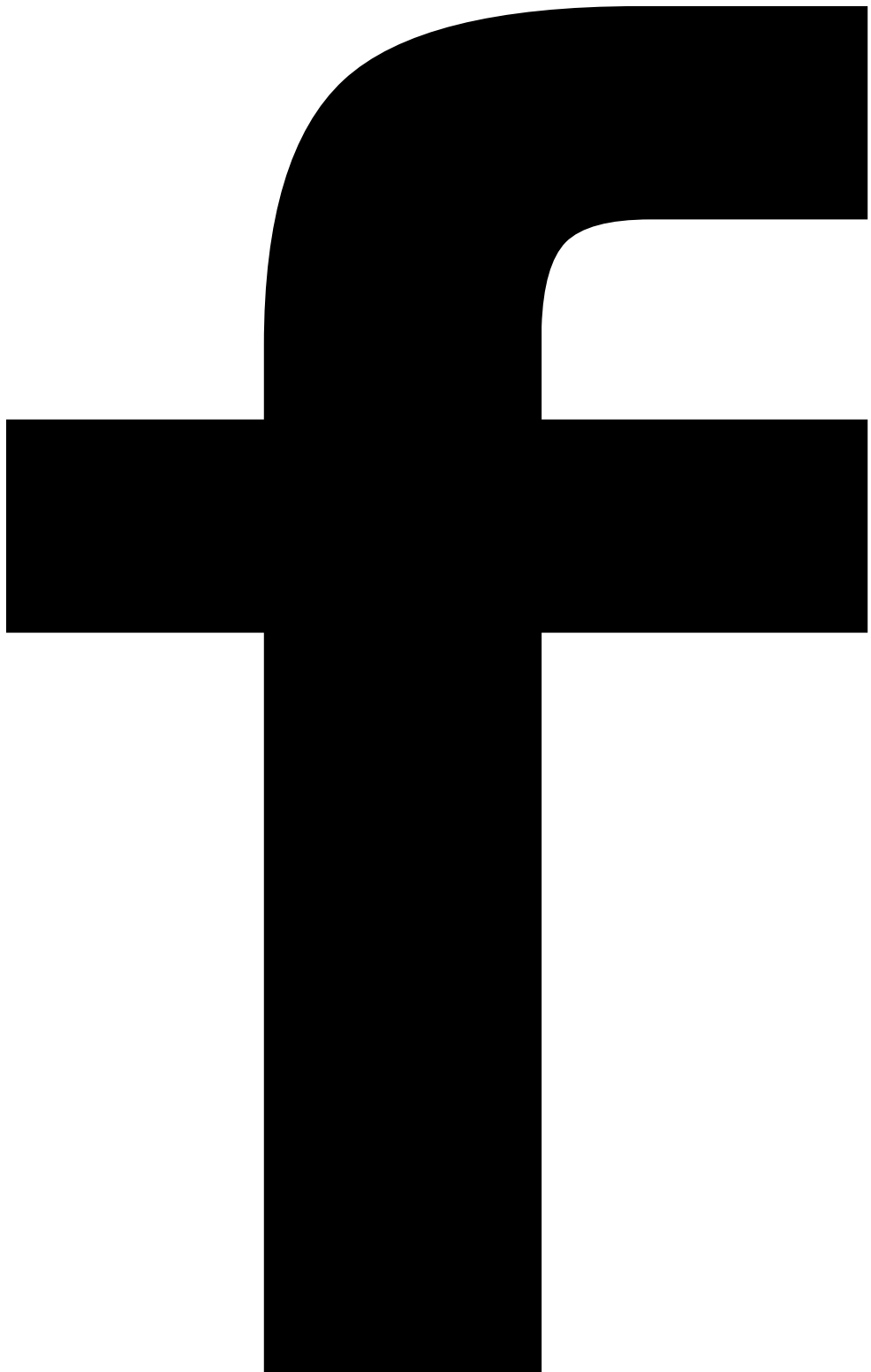




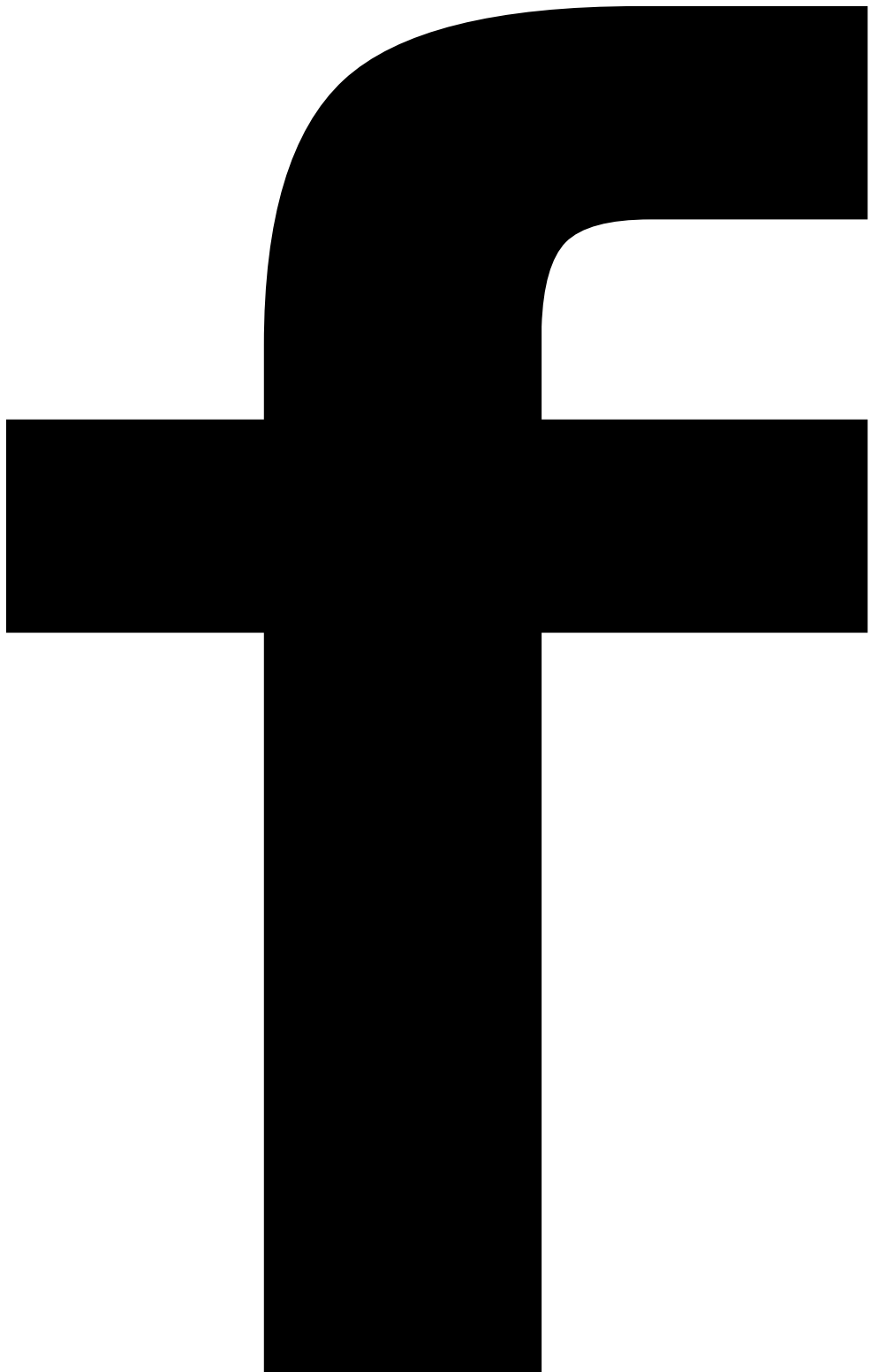


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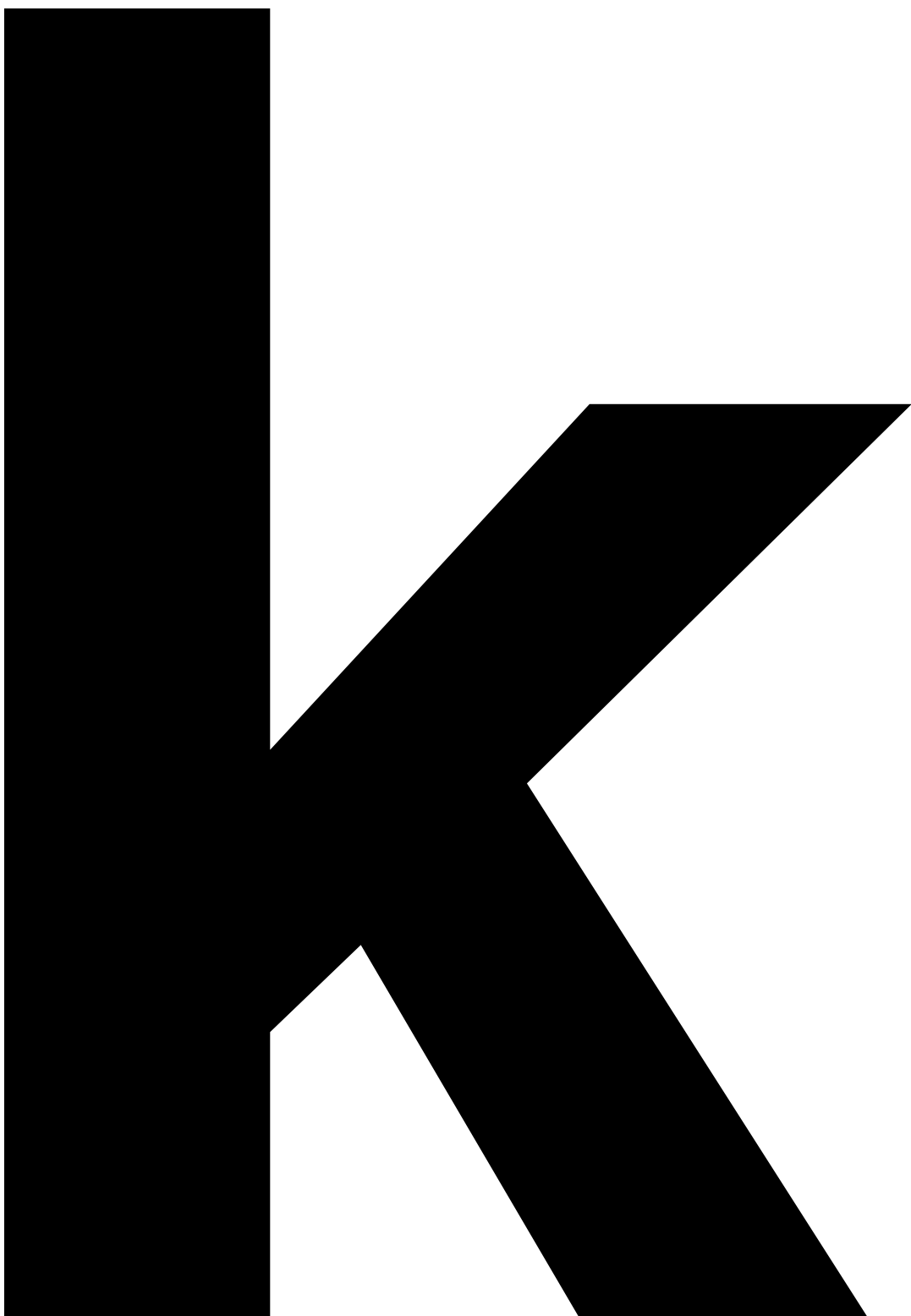




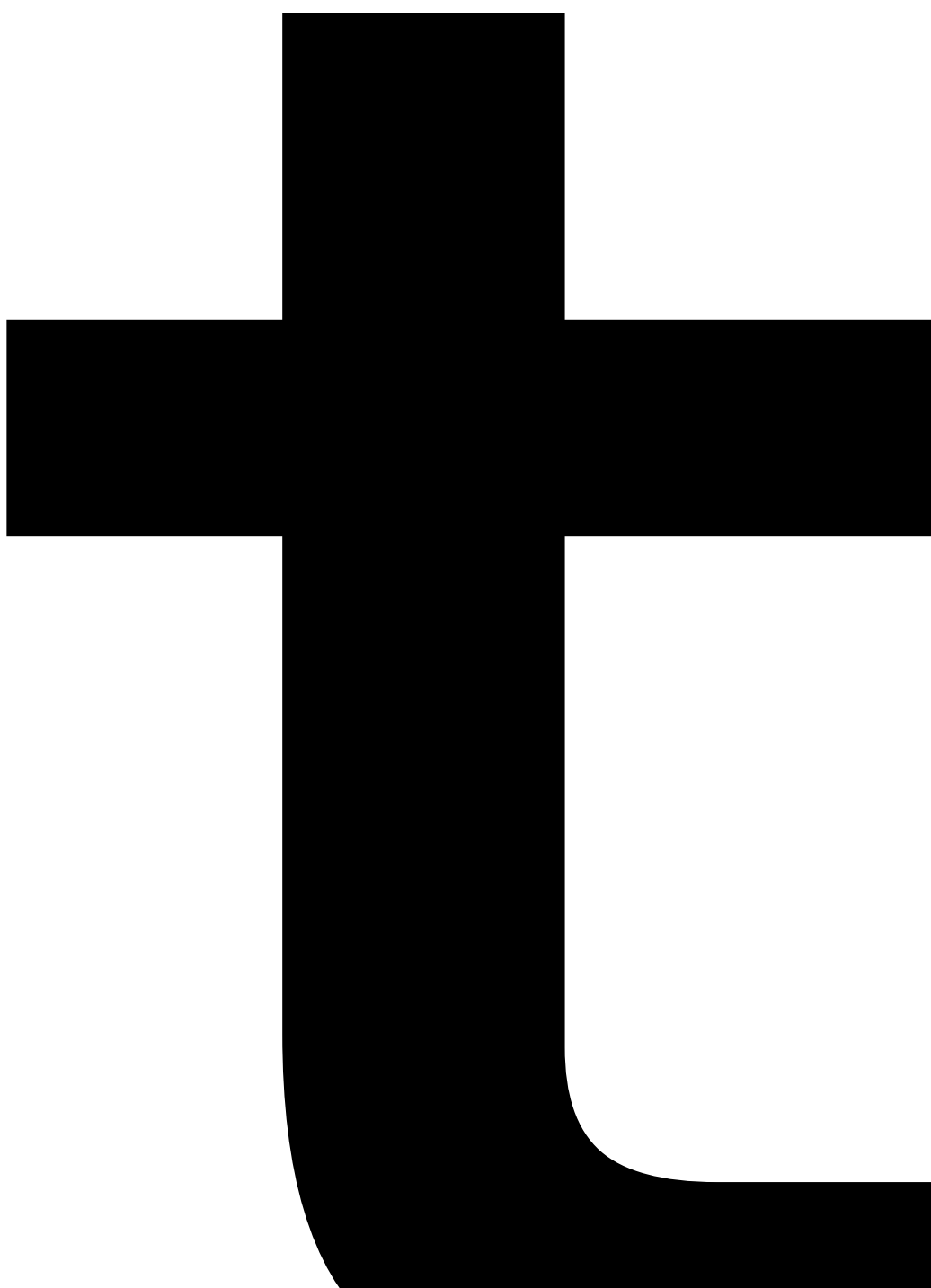


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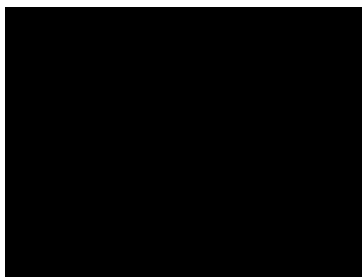












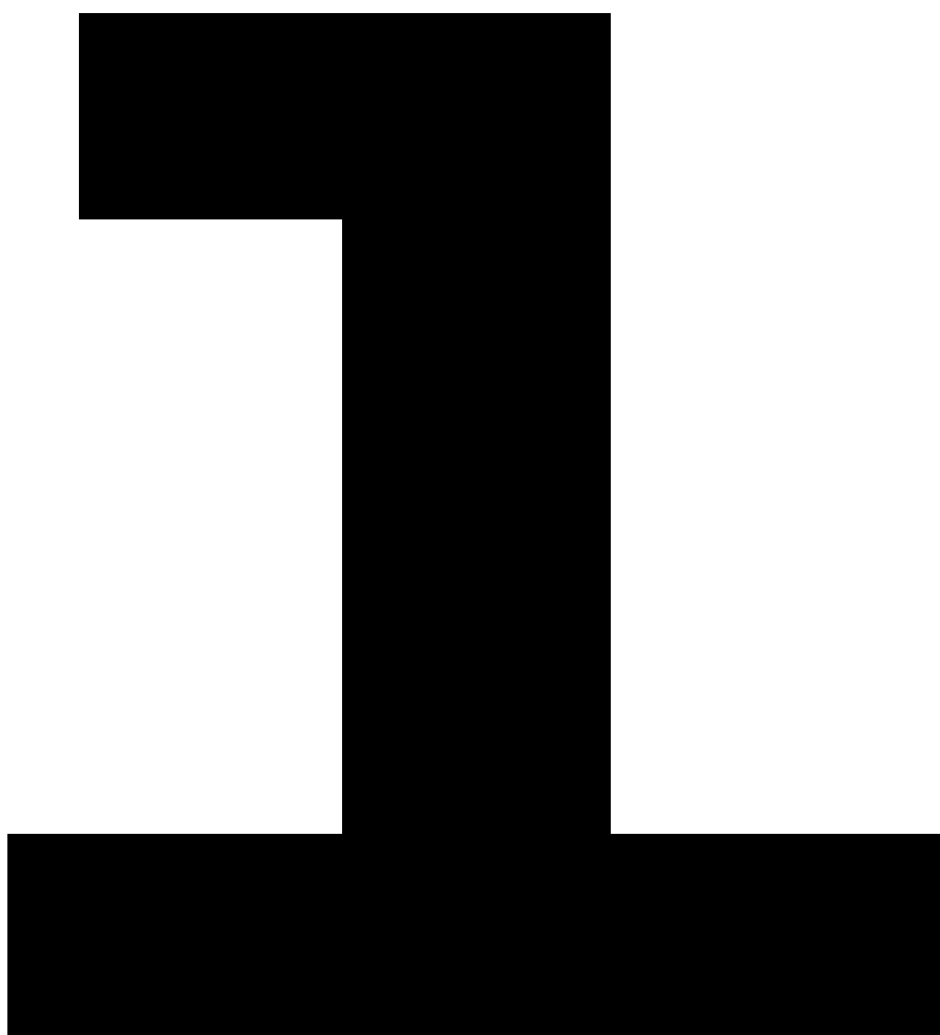














**n**





**e**



**r**







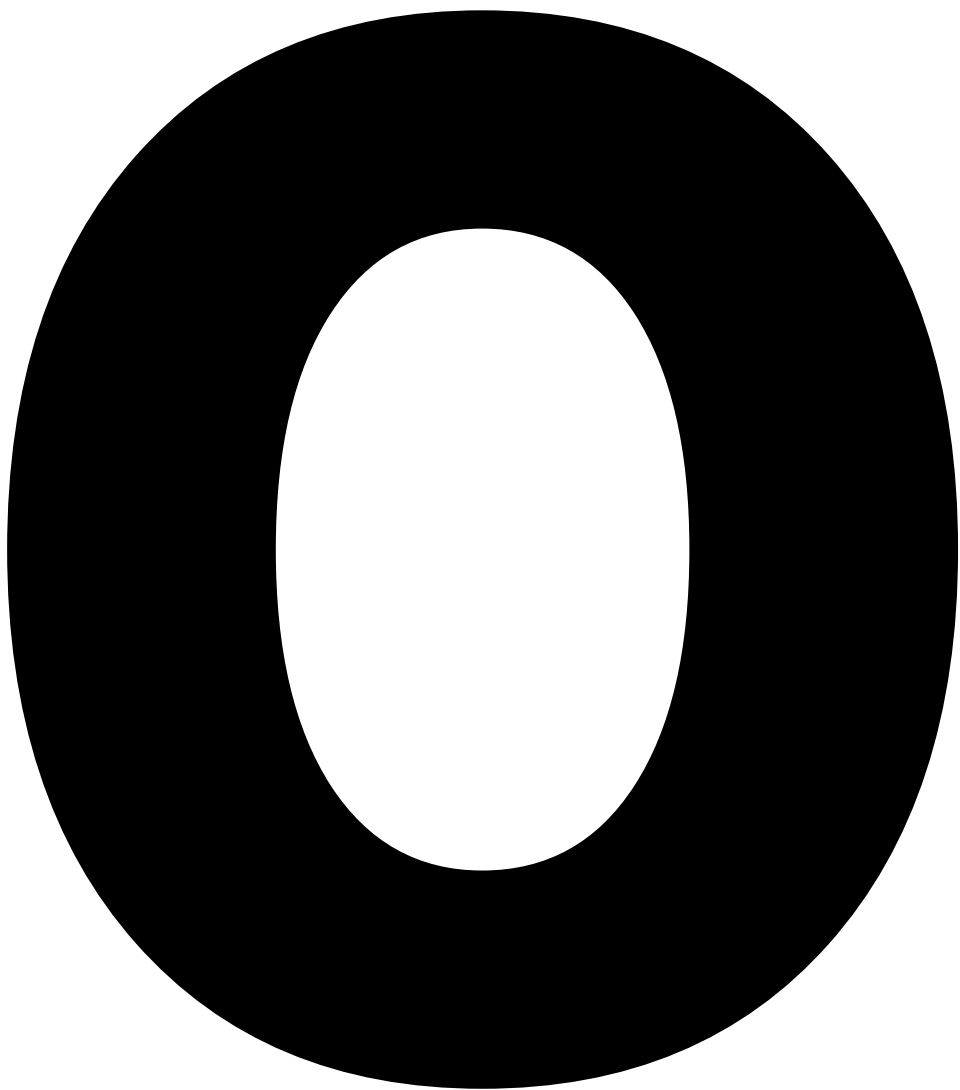
**h**





**e**







**r**



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**V**





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**S**



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**O**



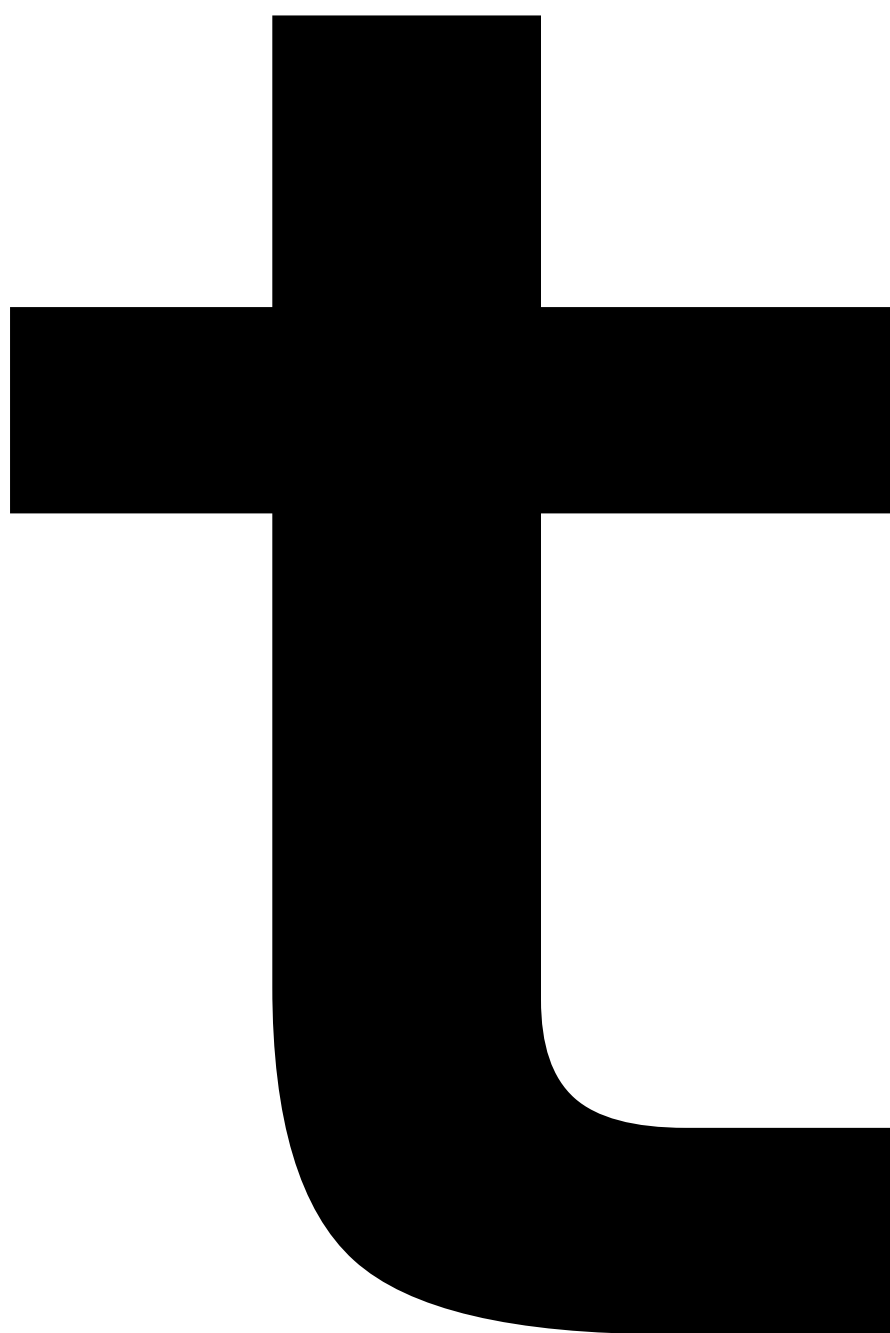
2





**S**







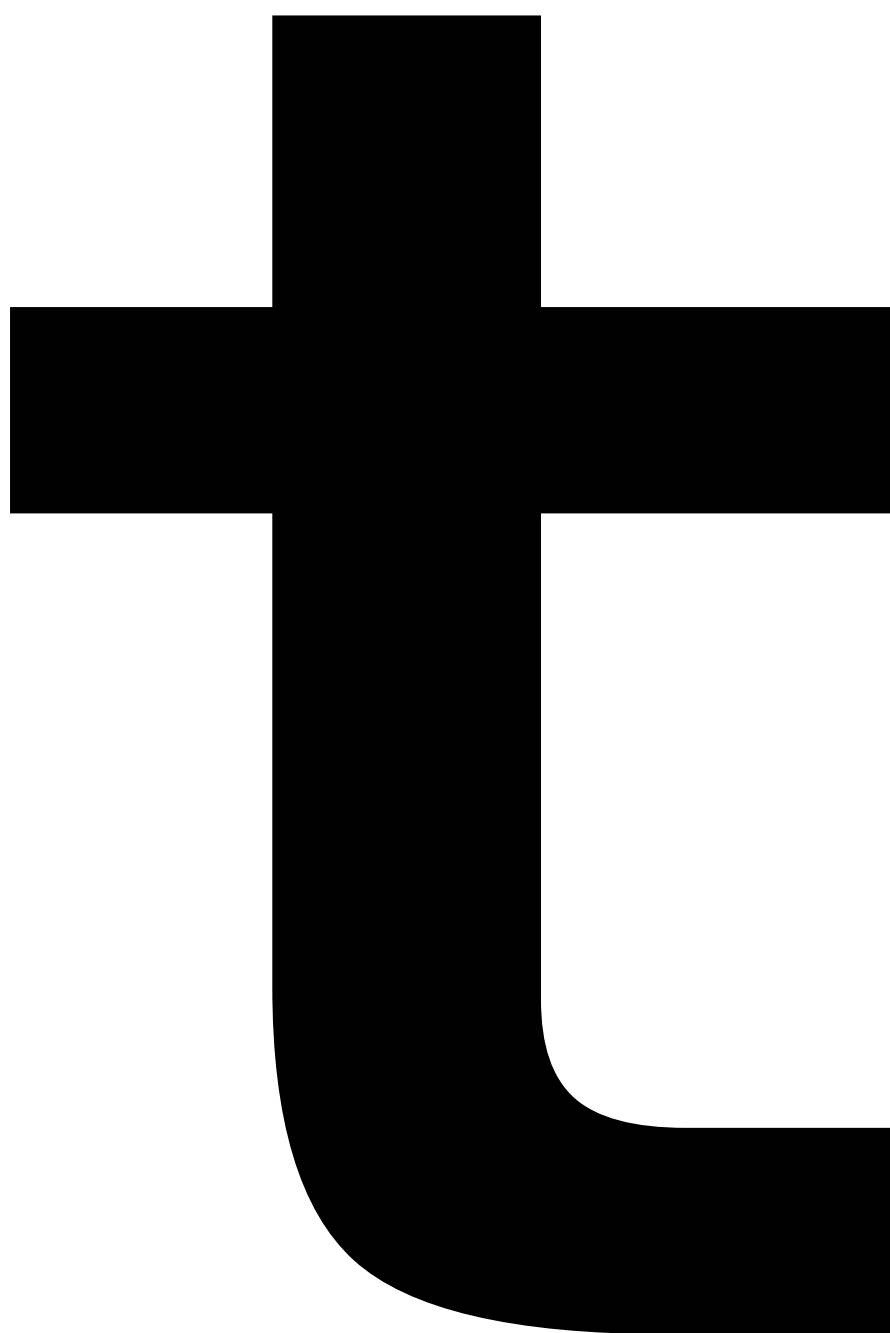
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**h**









**e**







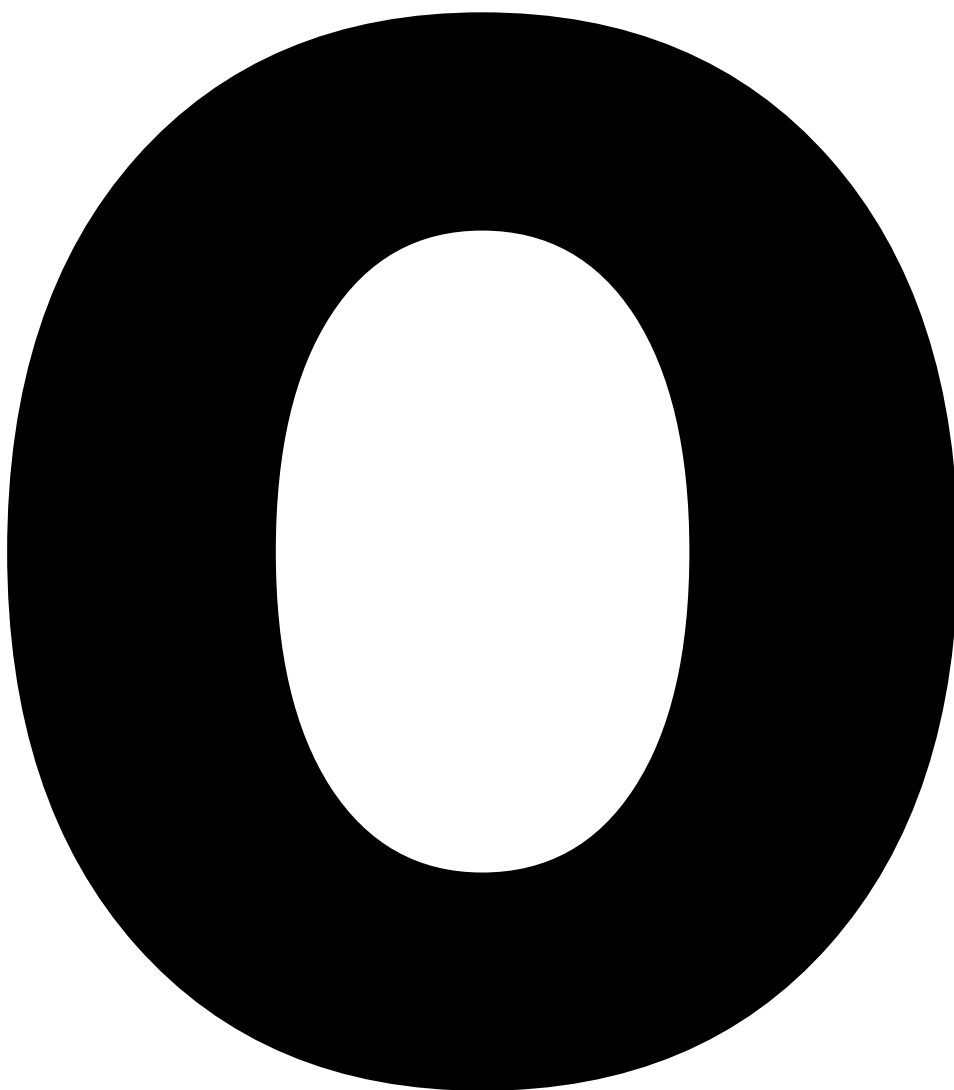
**n**





**m**







**Q**



**J**













**h**



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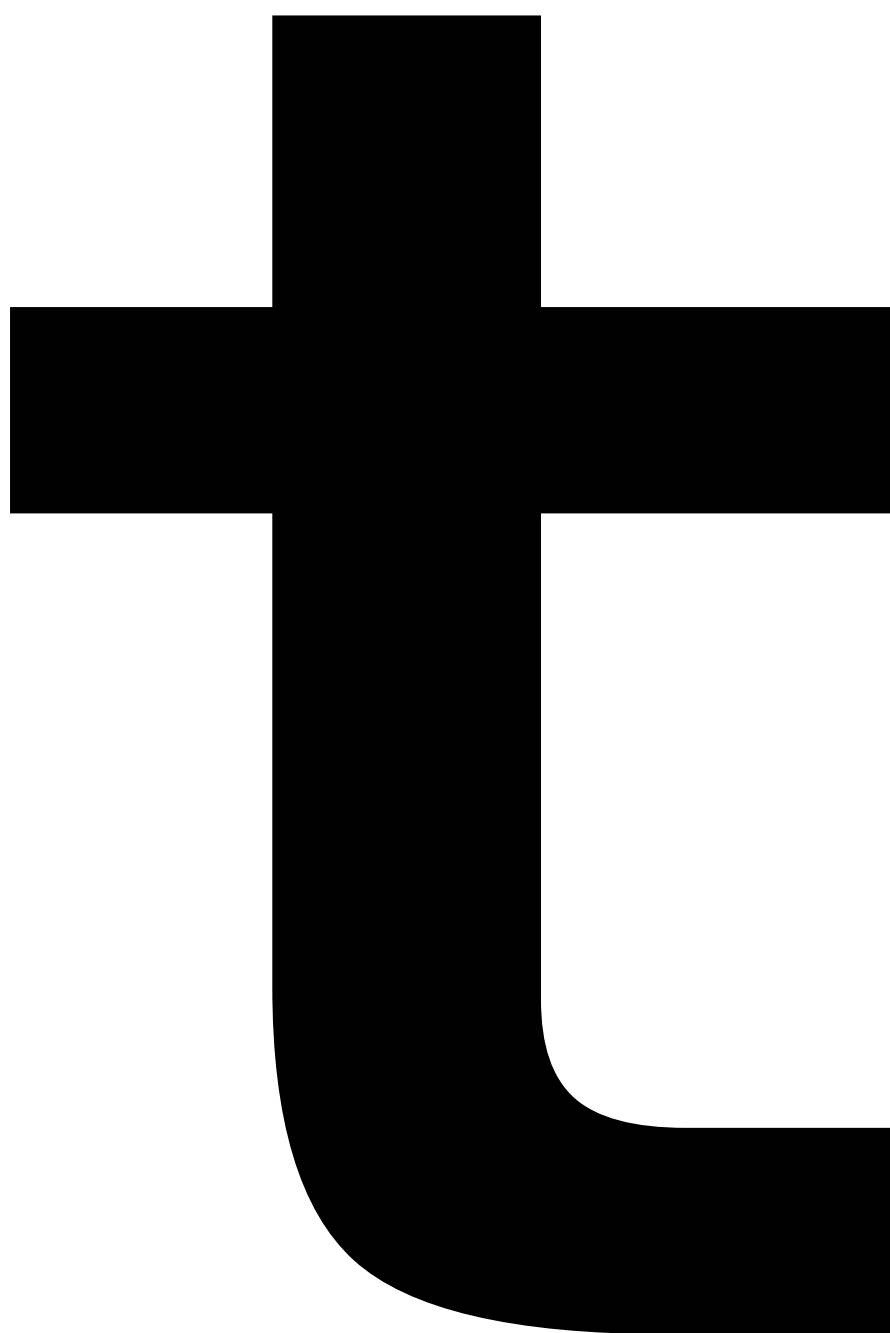
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**S**













**e**



**Q**





**V**







**n**







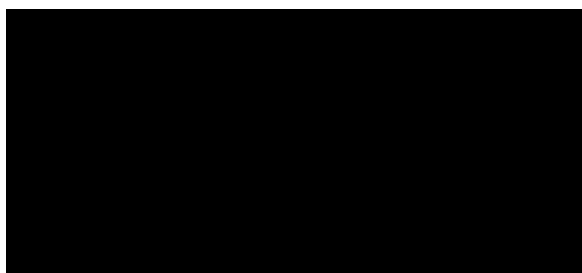






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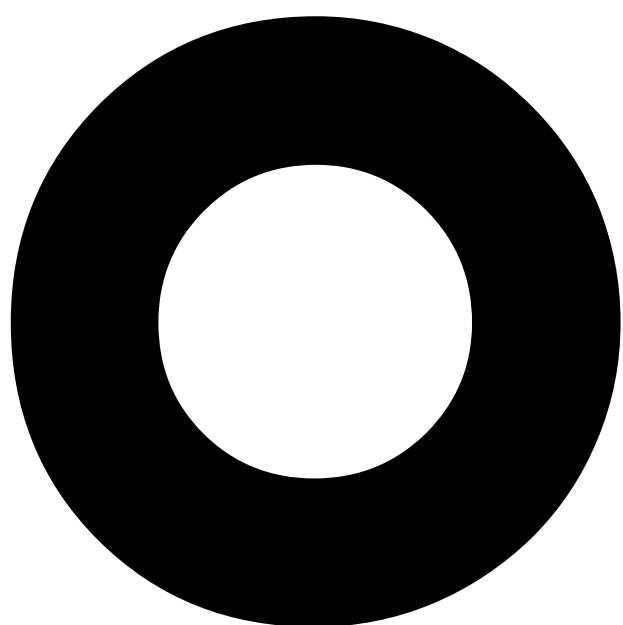






**5**







**C**





**Q**



**e**



**Q**



**e**





**n**







**10**



**e**



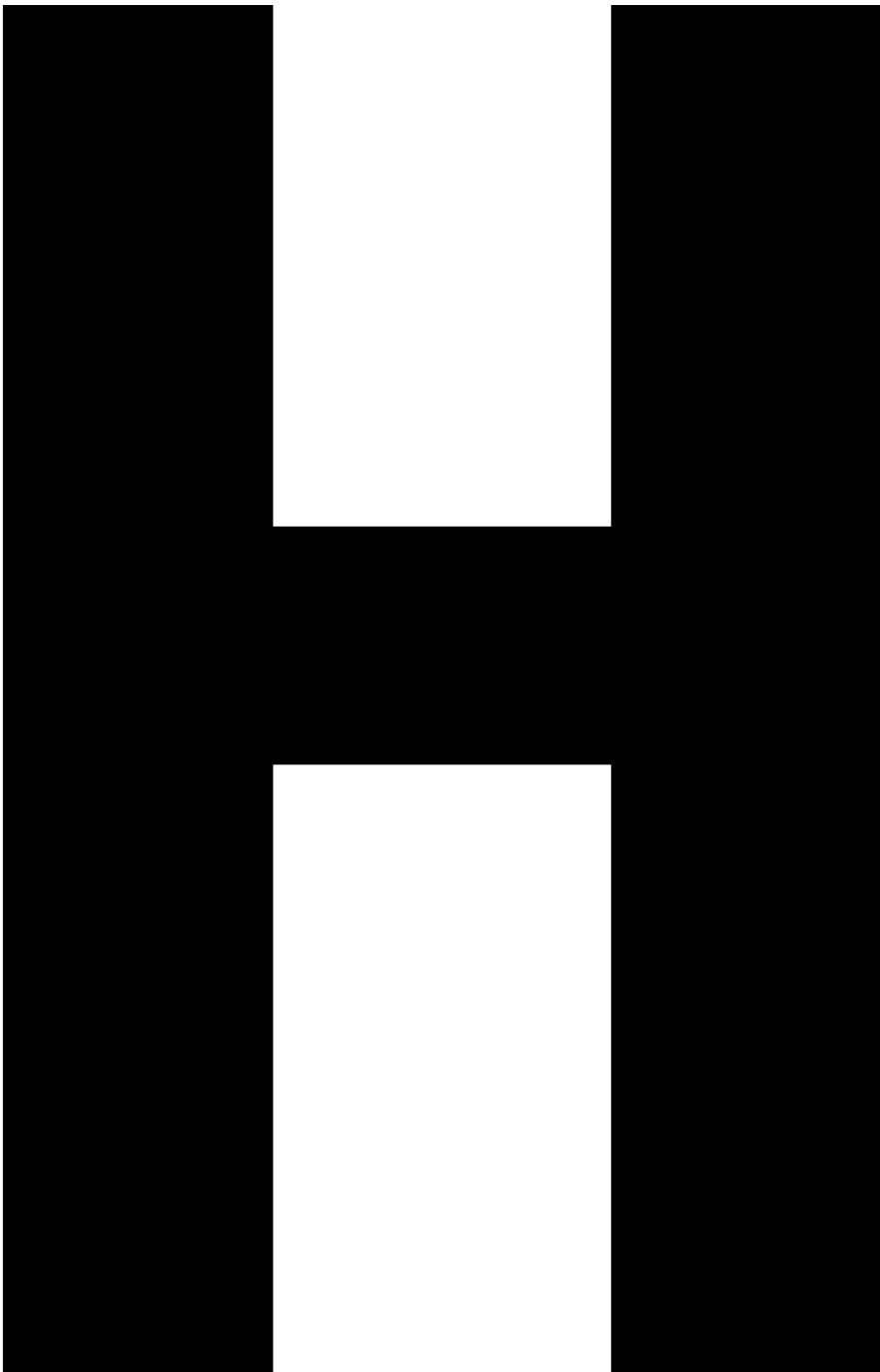


**r**

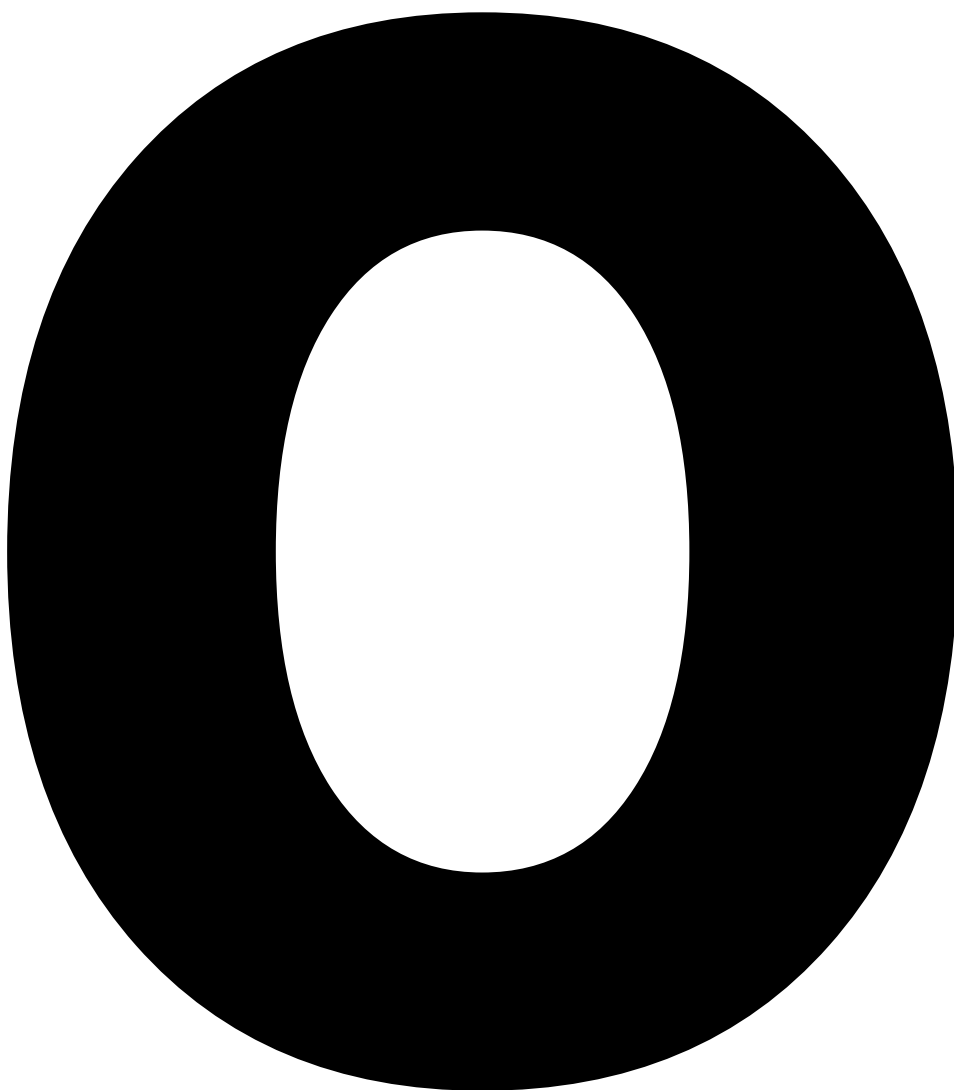
















**h**



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**e**



**S**







**5a**





**m**



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**n**





**V**







**n**



**u**





**n**



**Q**



**J**



**5**





**u**

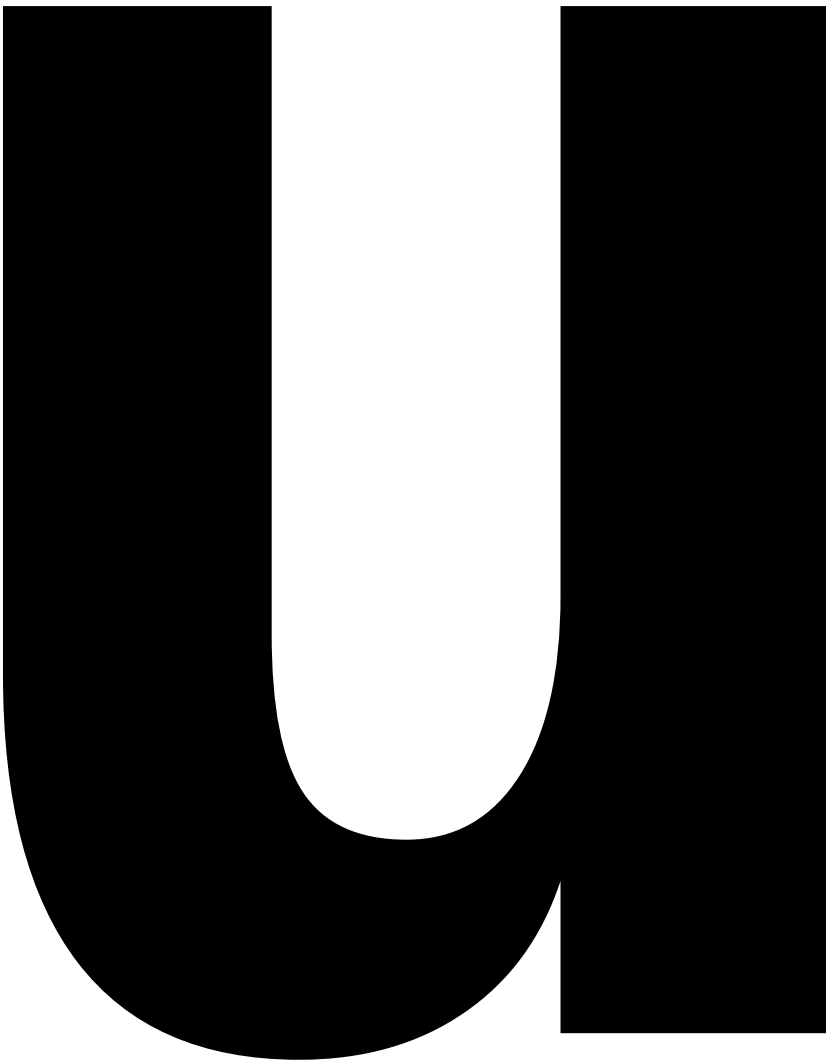


**10**



**w**









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**Q**





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**m**



**5**



**m**









**Q**



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**J**

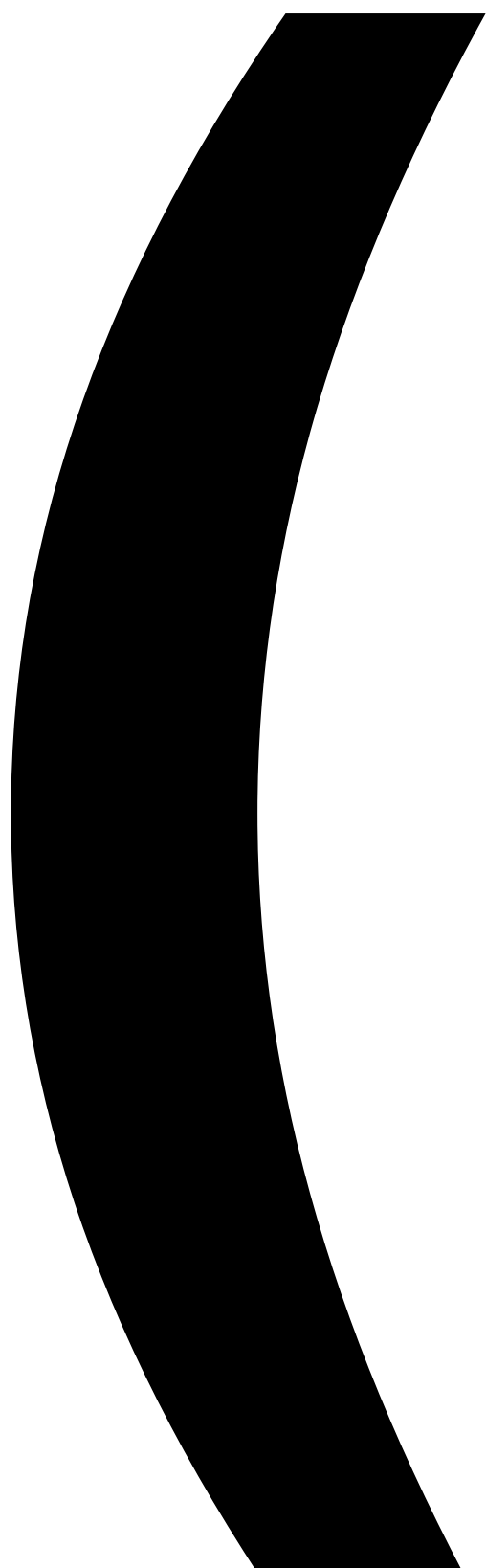


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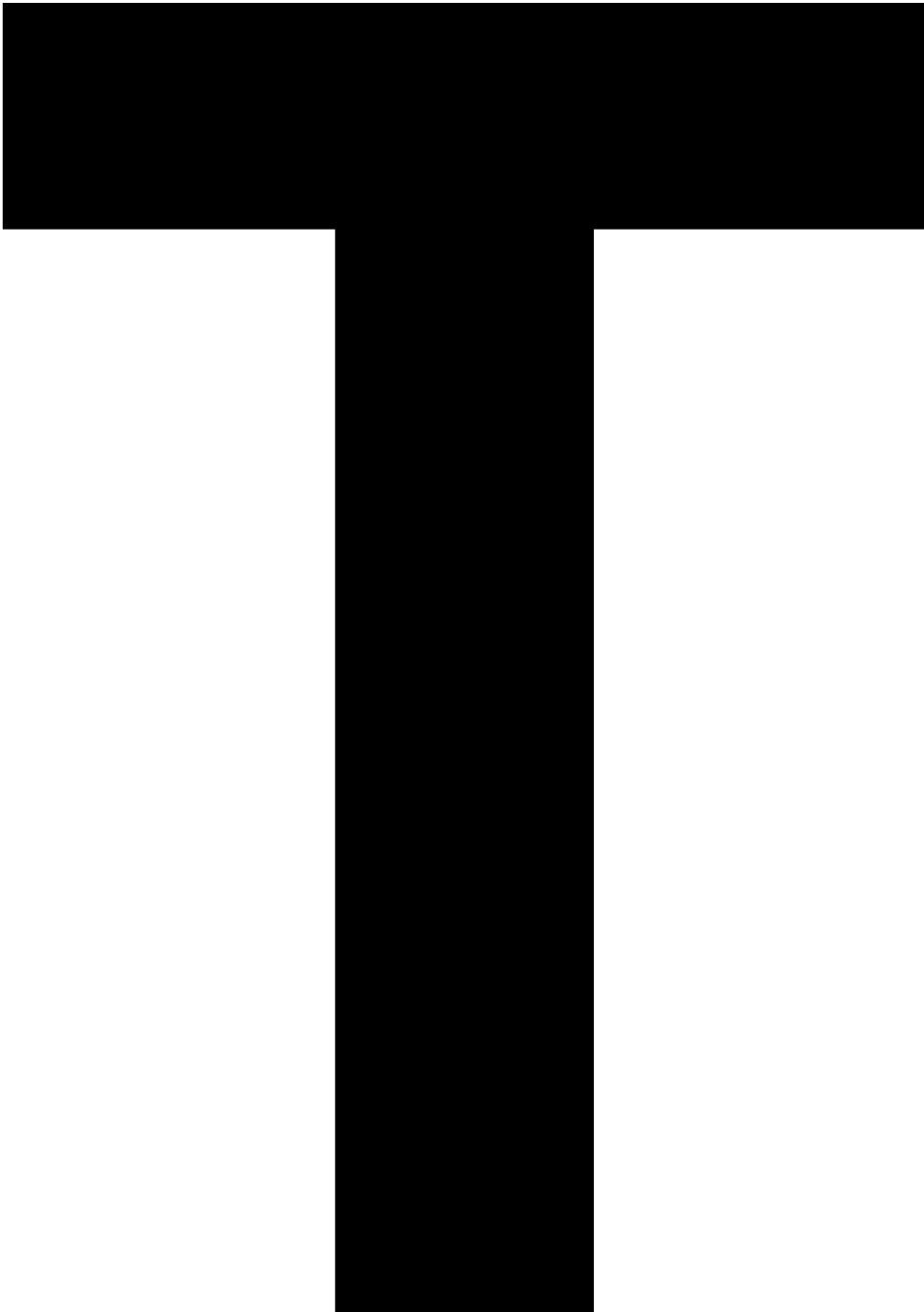






**e**









**h**



**e**



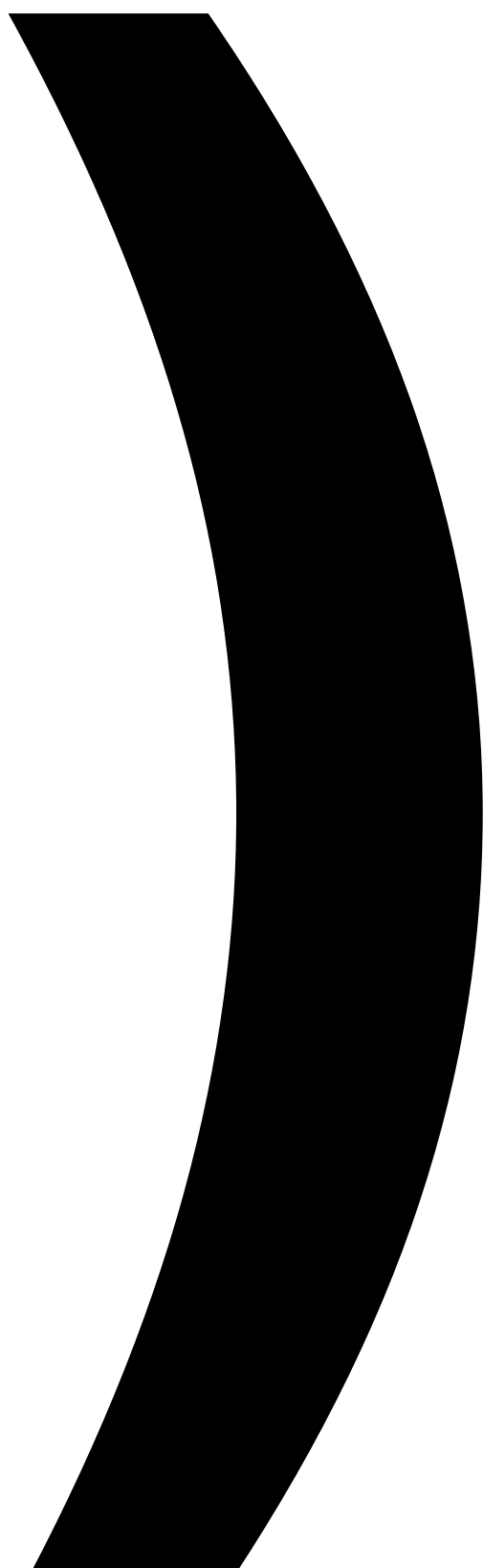
**S**



**e**







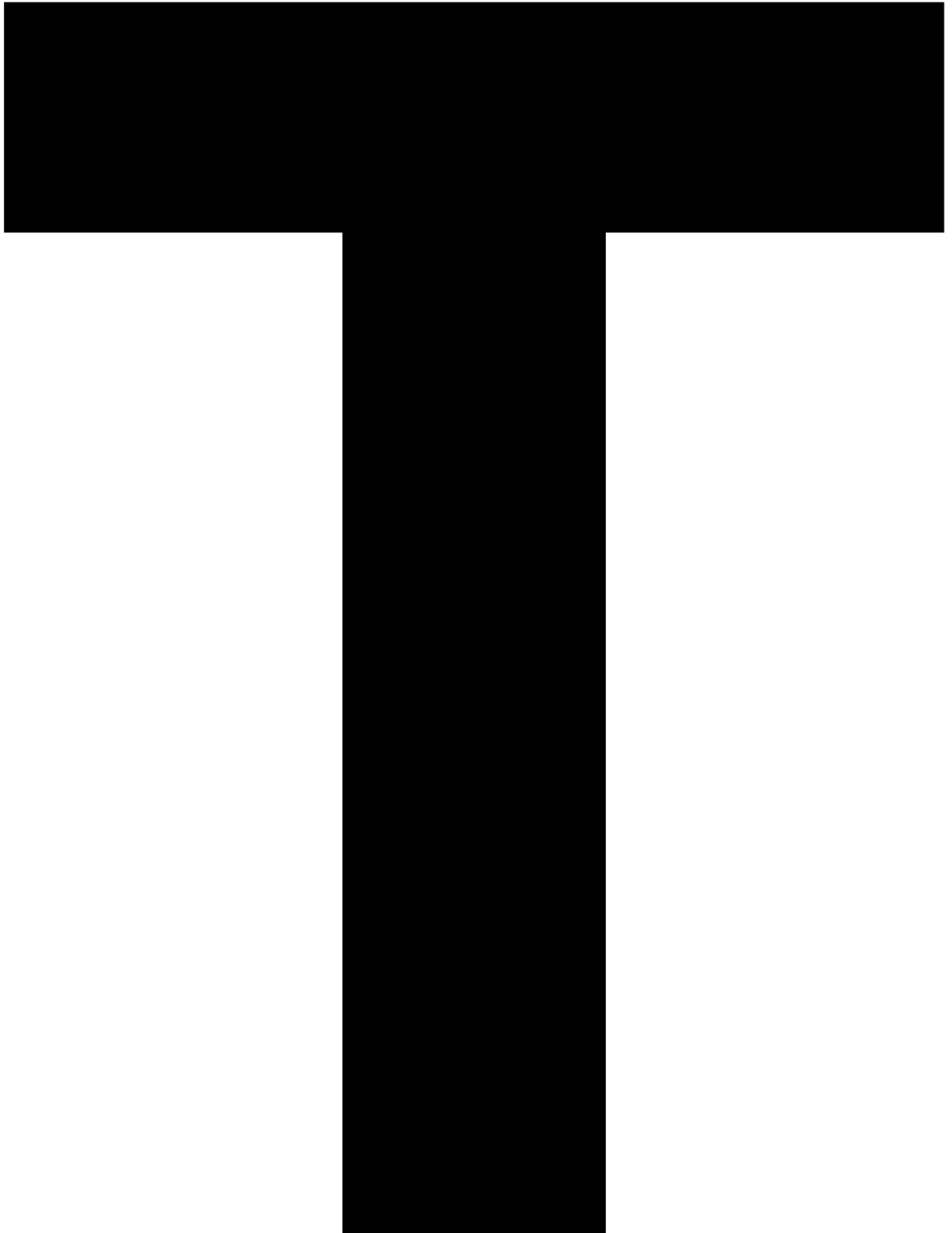






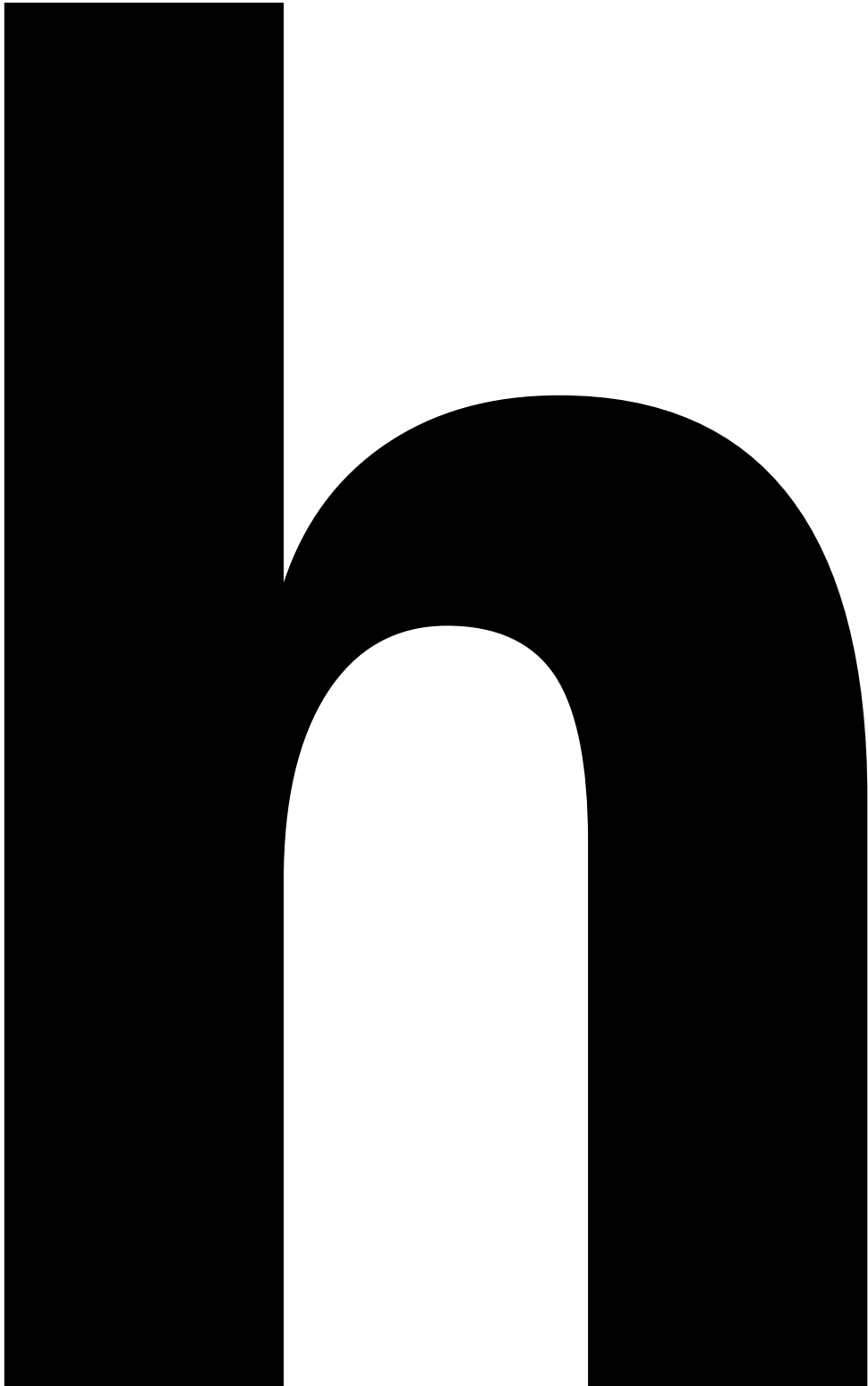














**e**



S



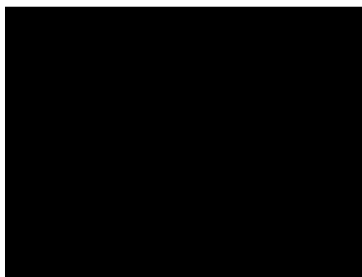
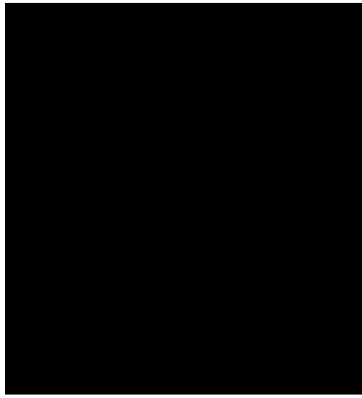
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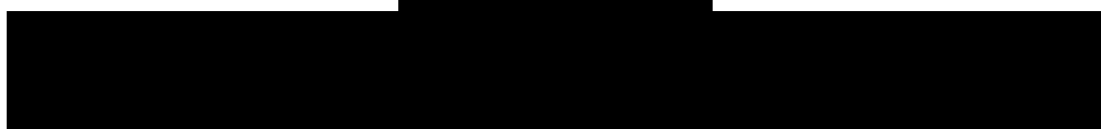
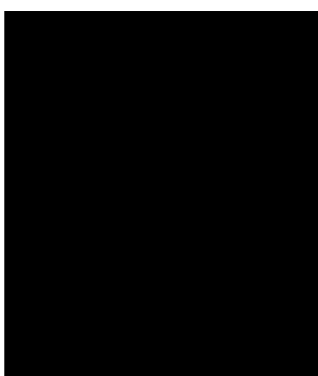






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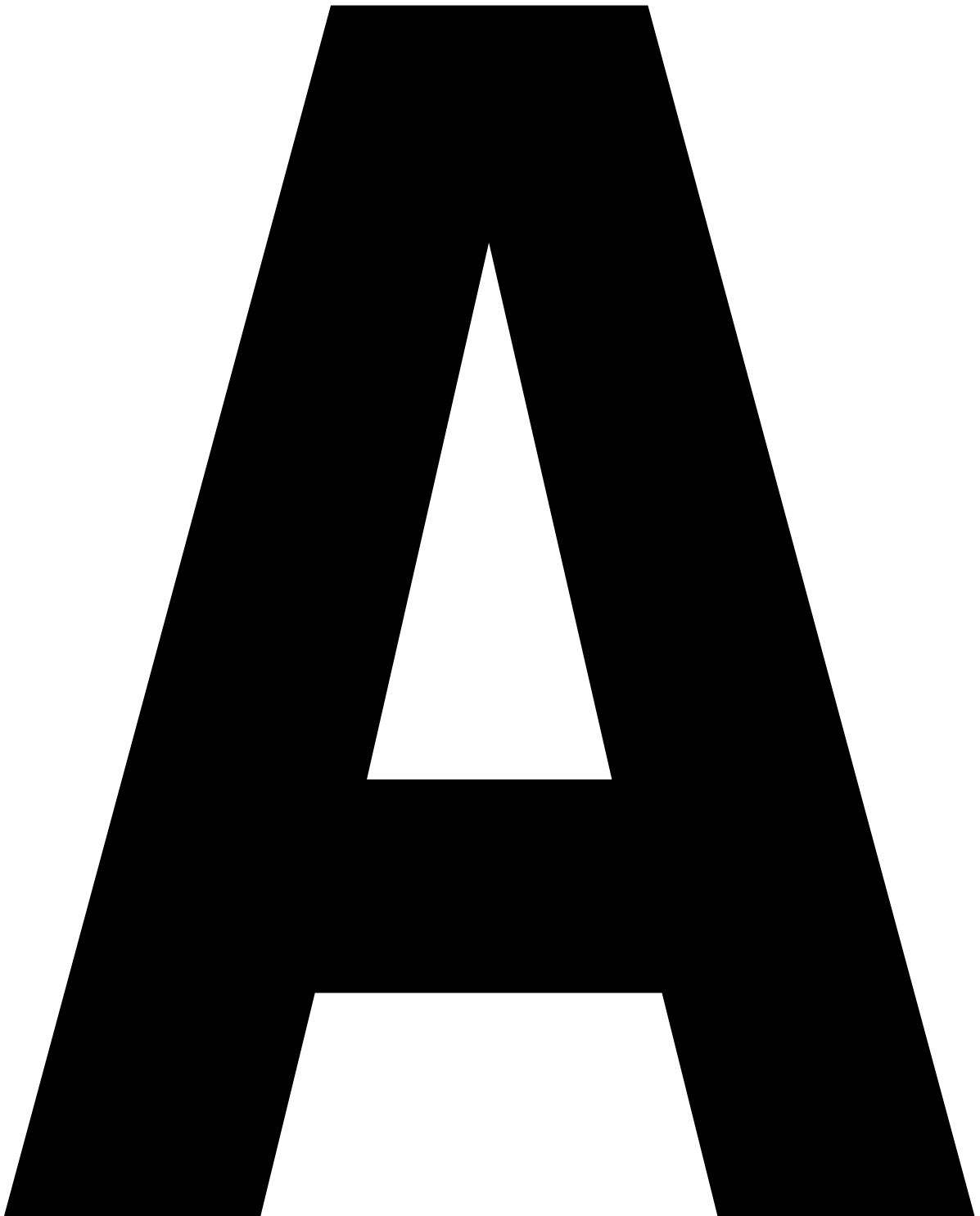




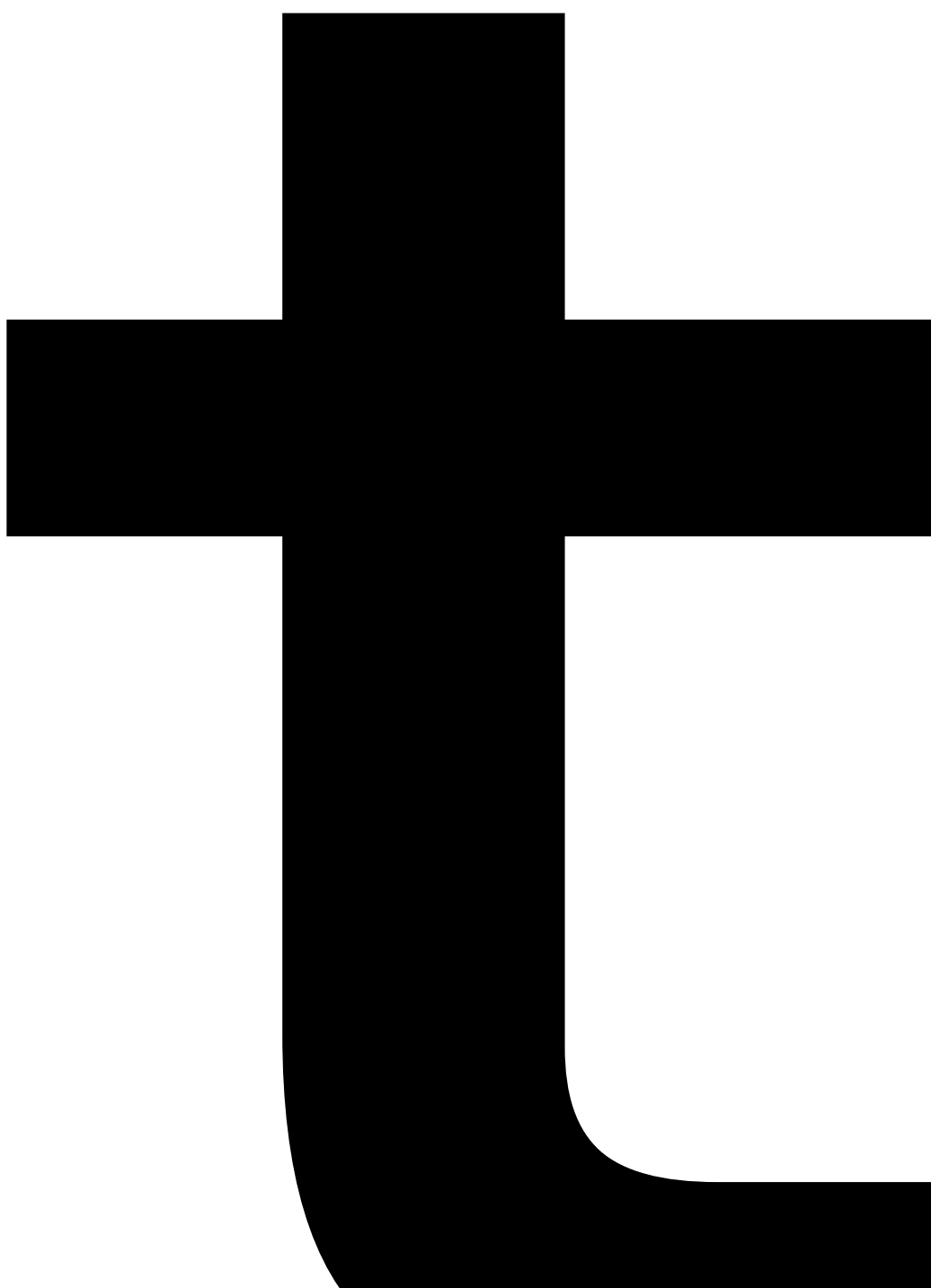


**e**

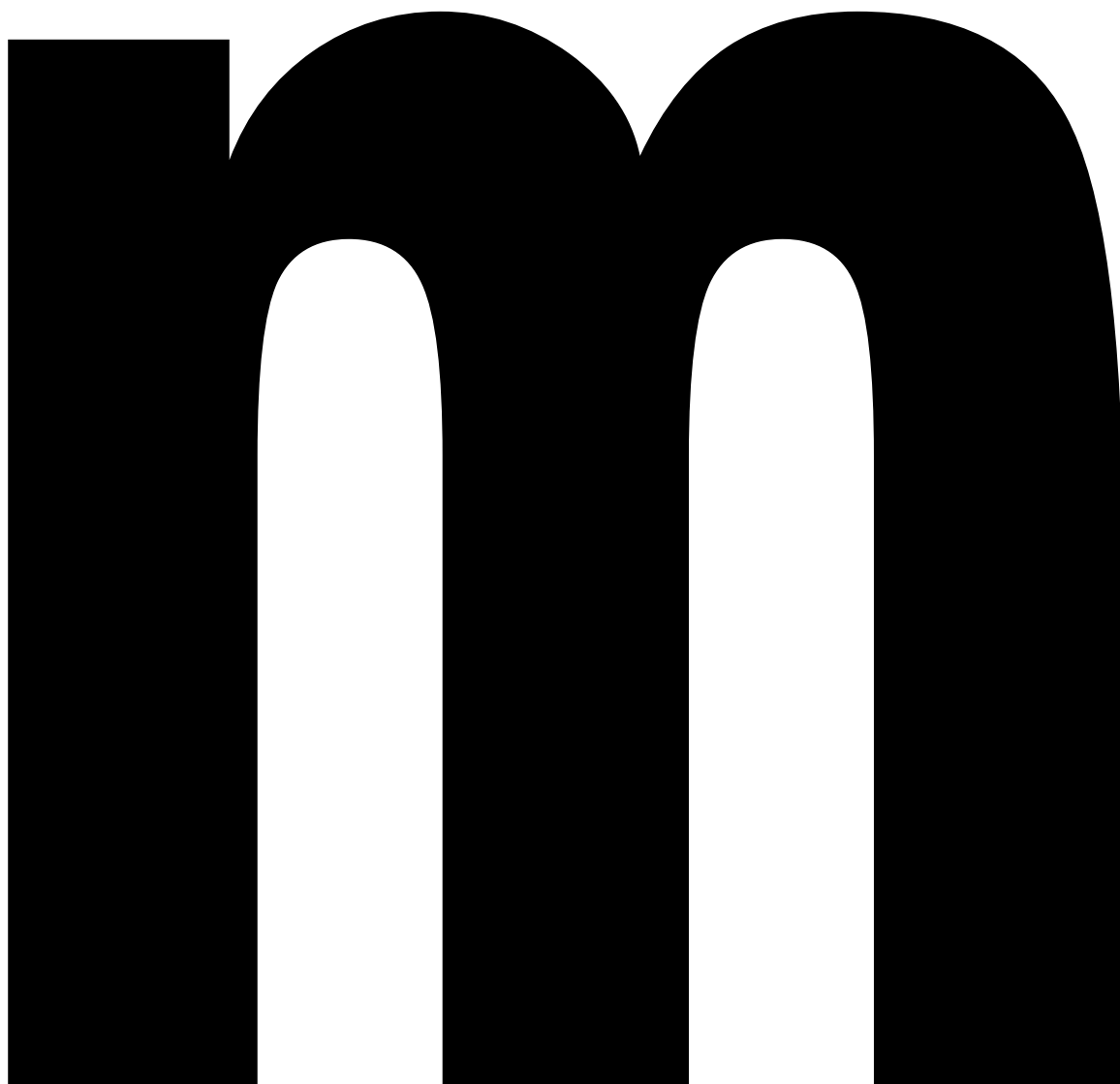






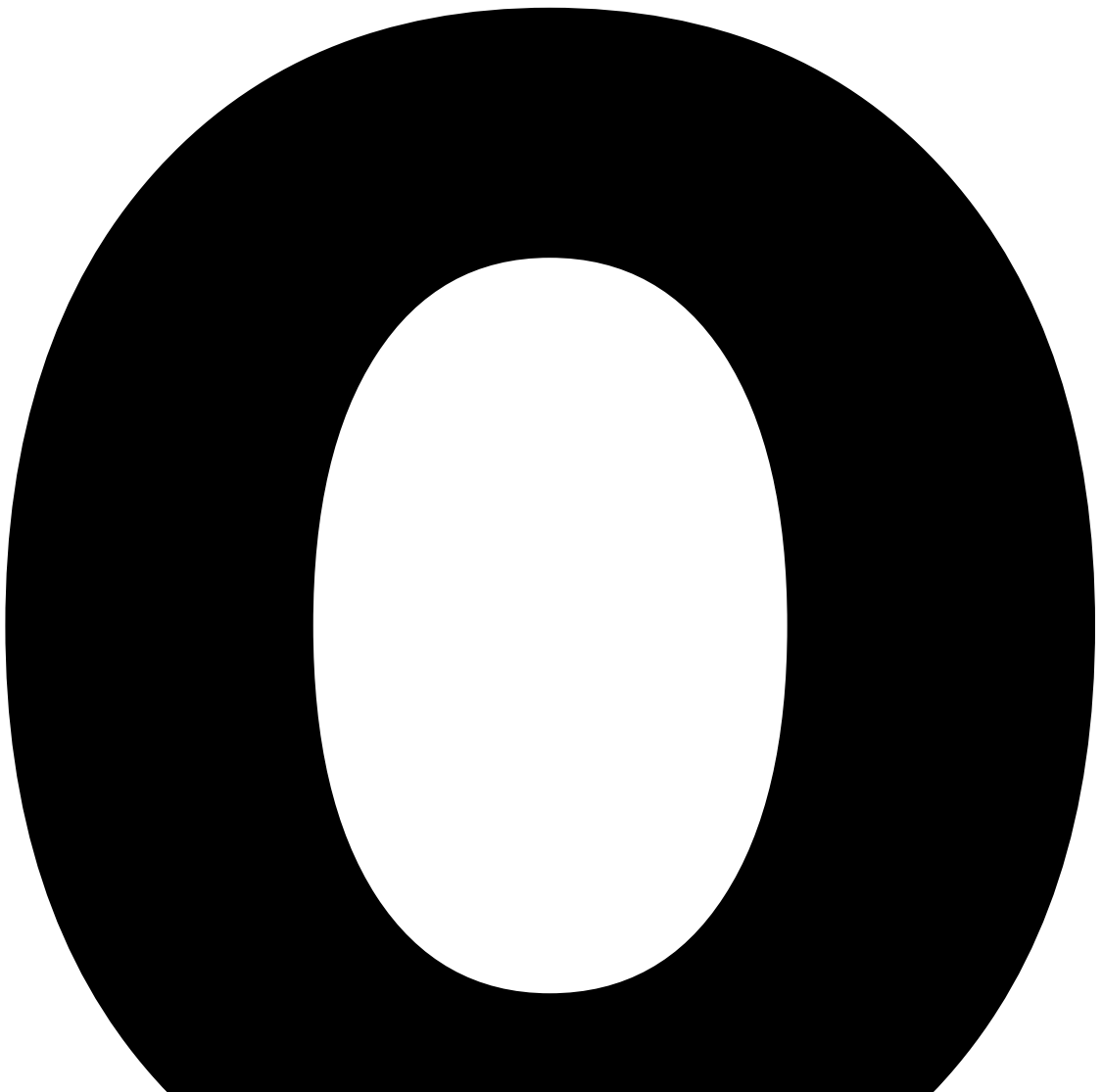












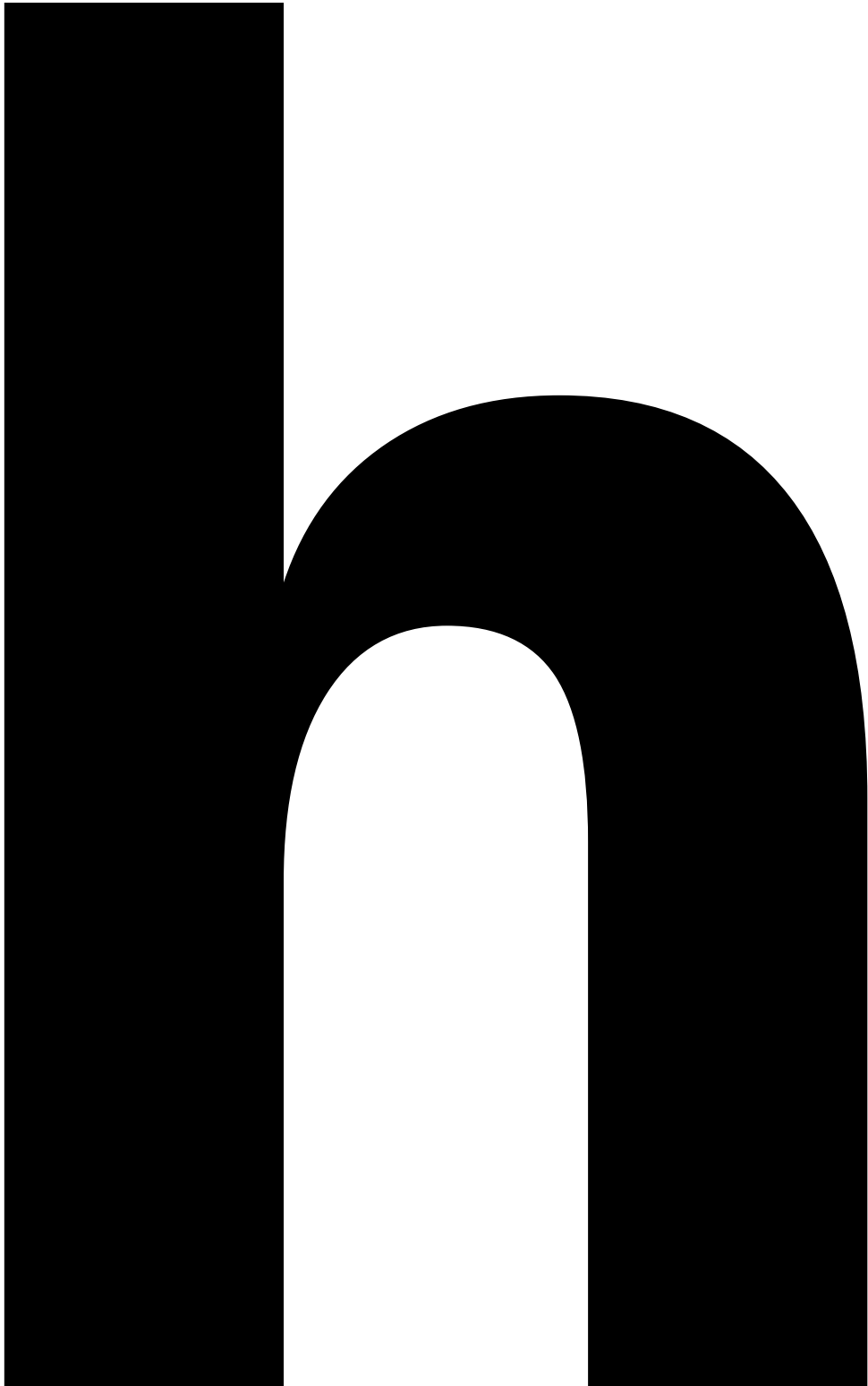


S



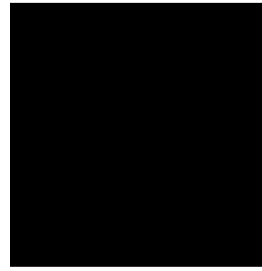
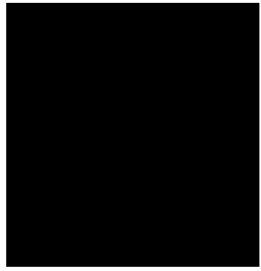
**ro**











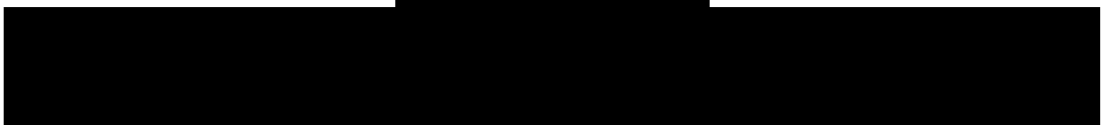
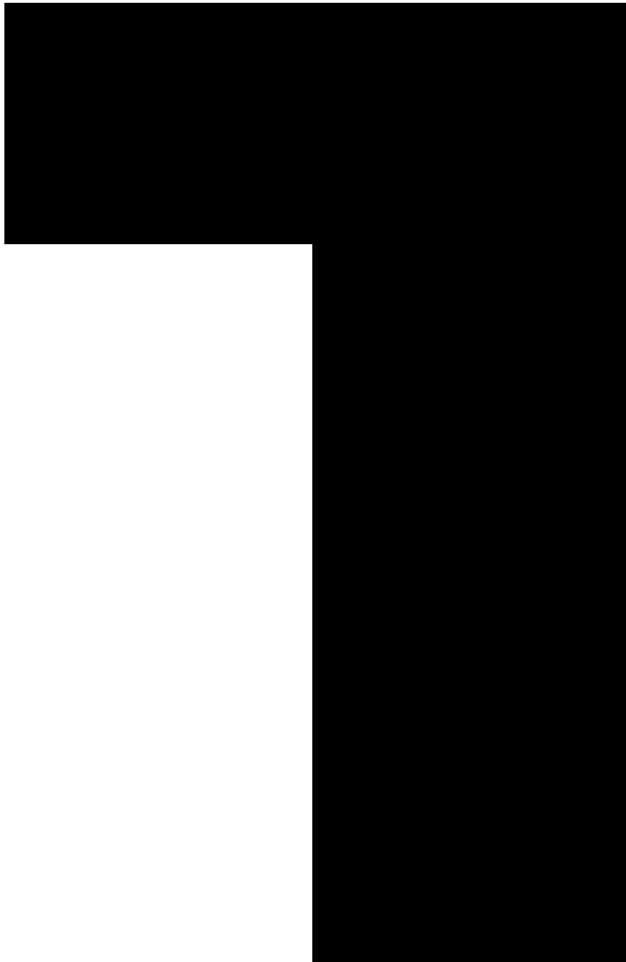
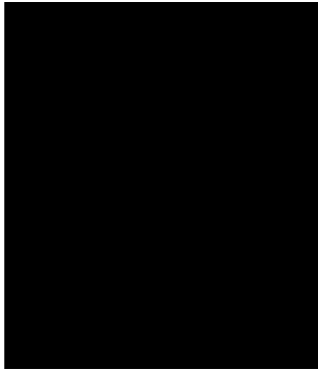






**e**



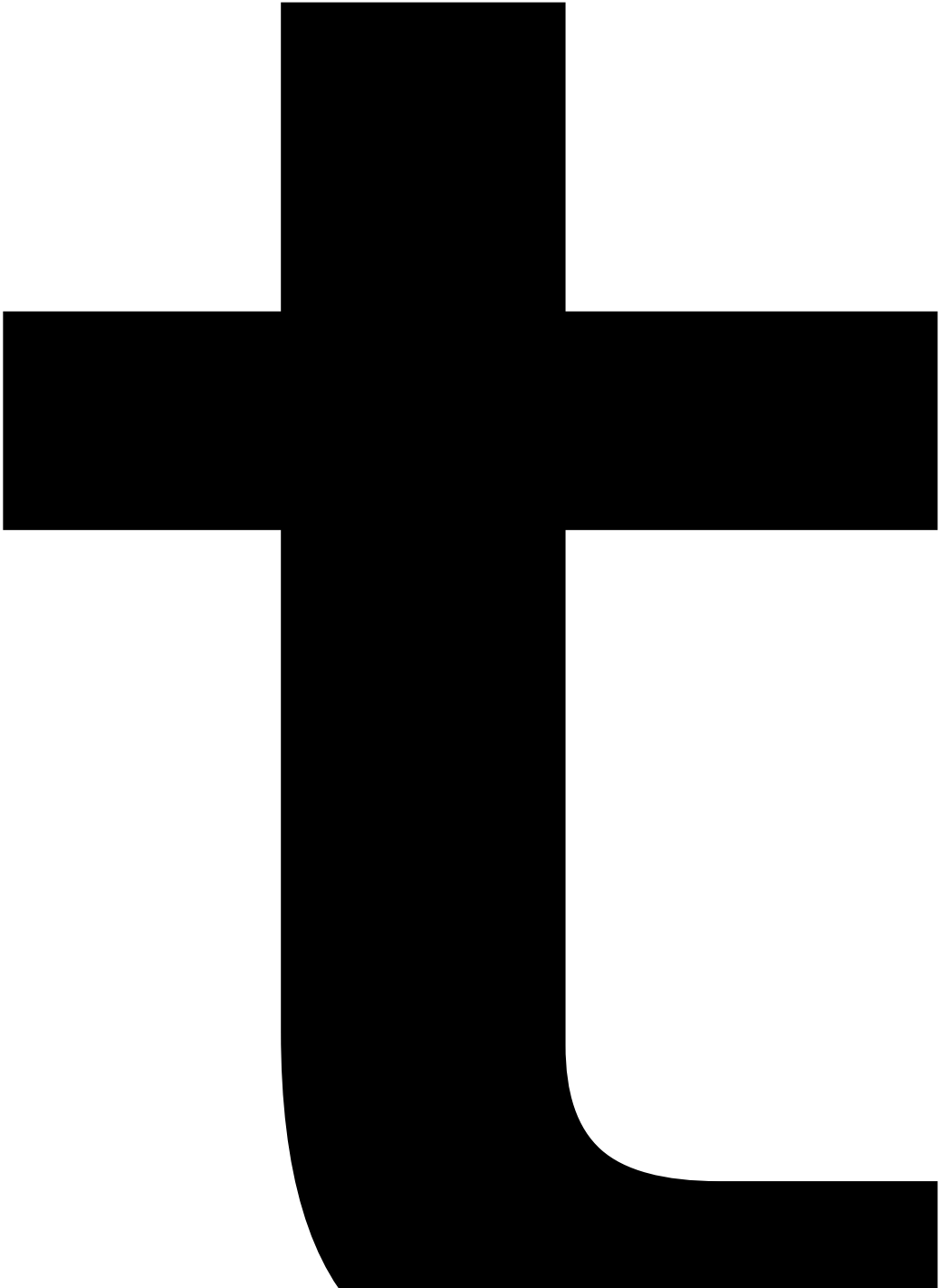






S

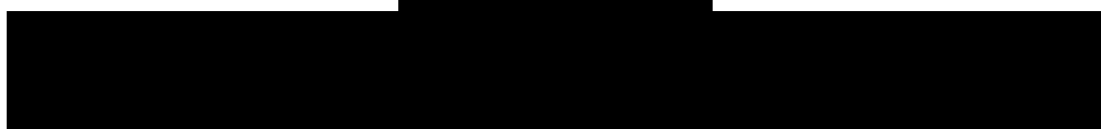
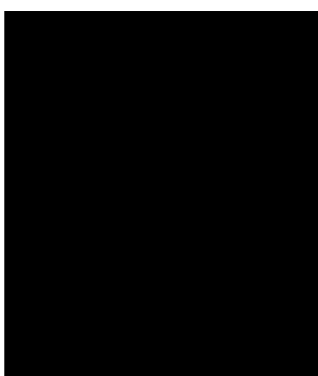






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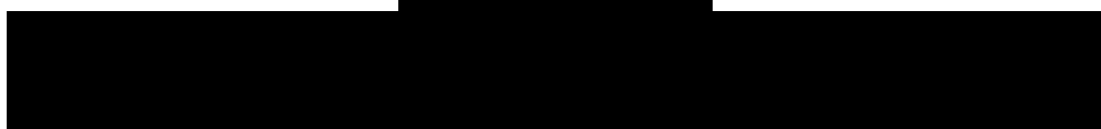
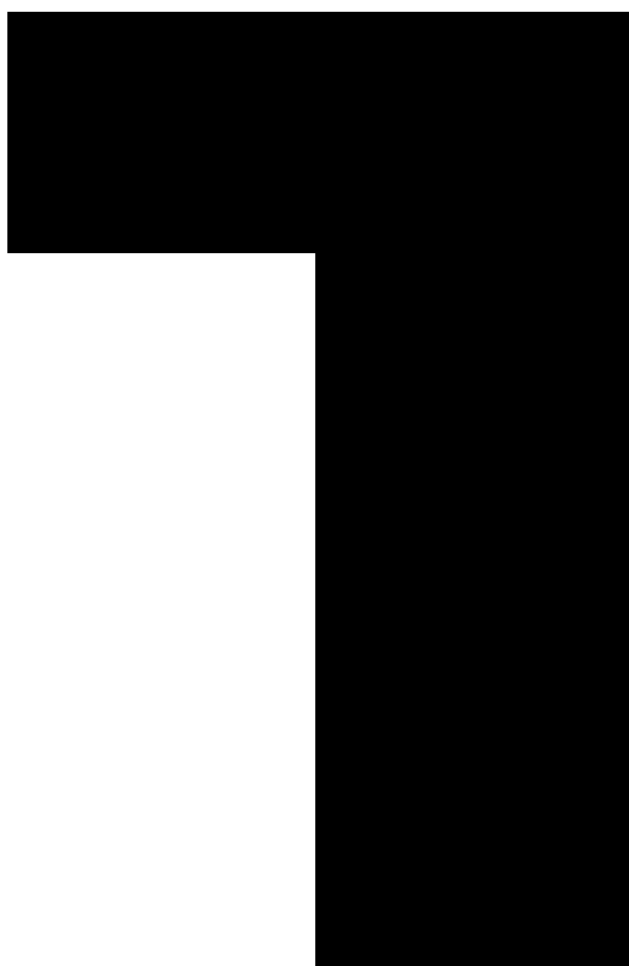
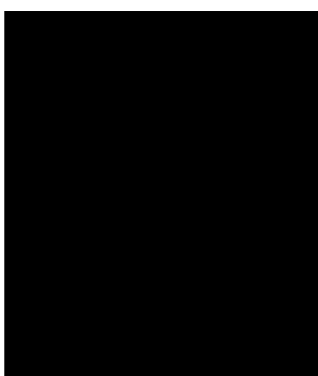


**e**



**e**







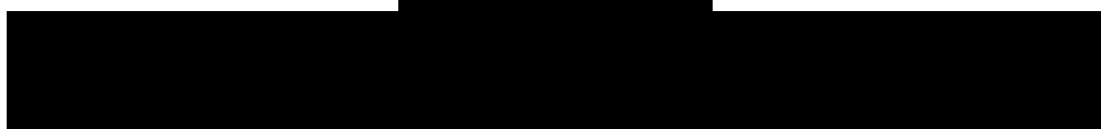
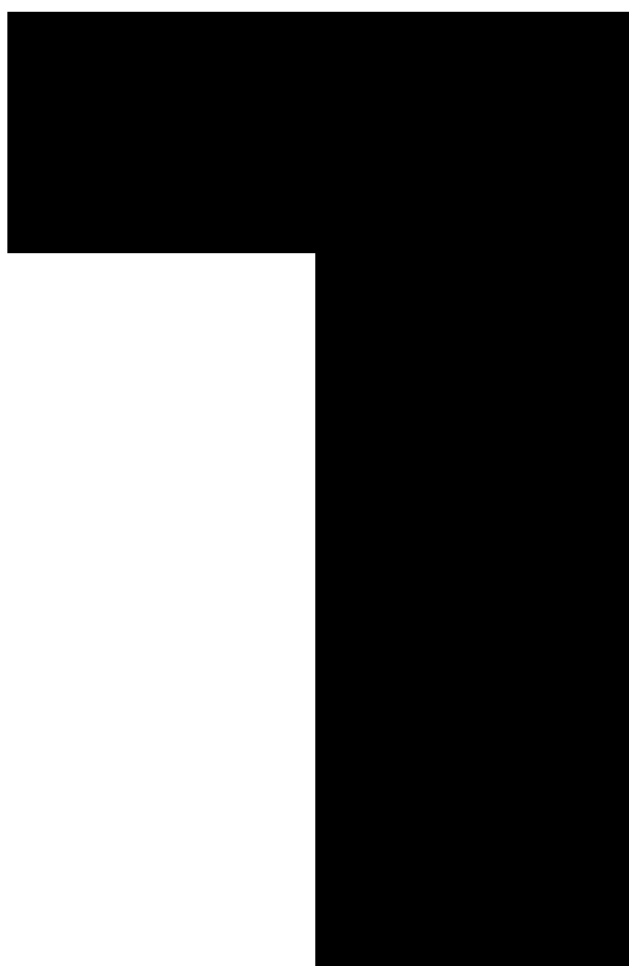
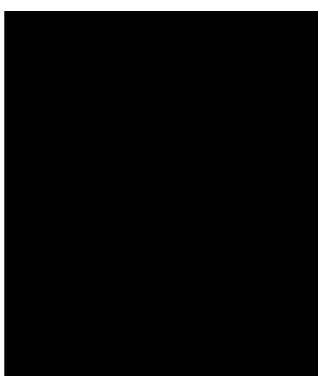














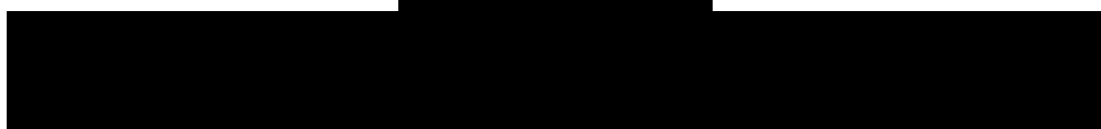
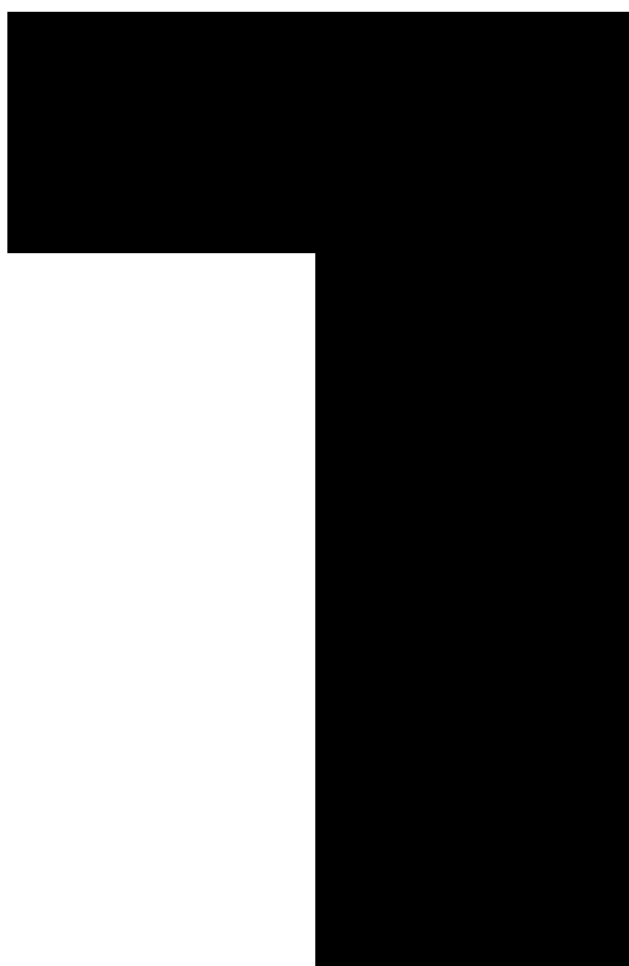
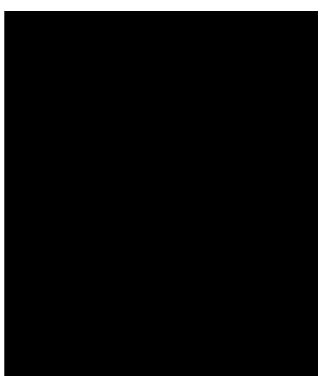
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S









**Q**



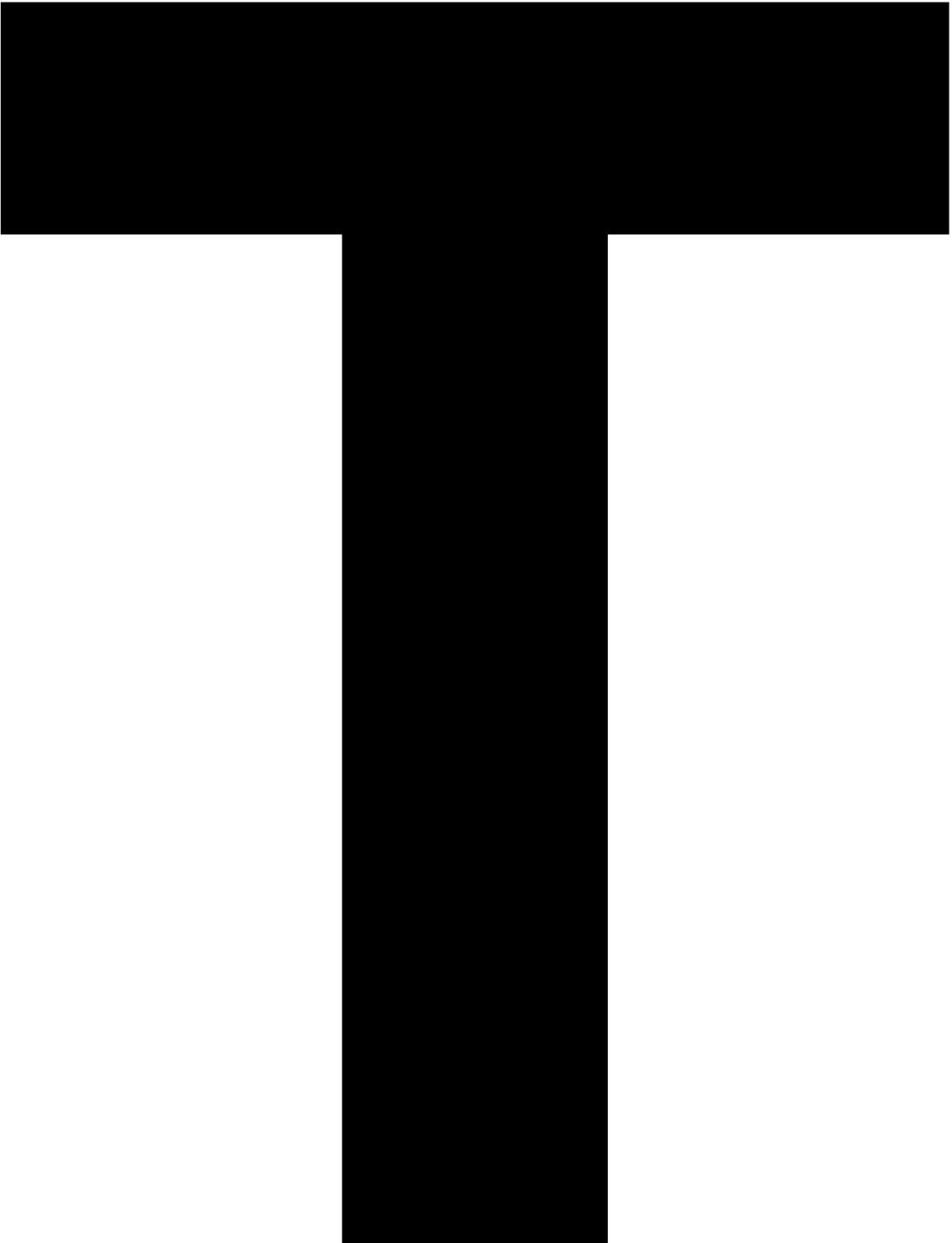
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S







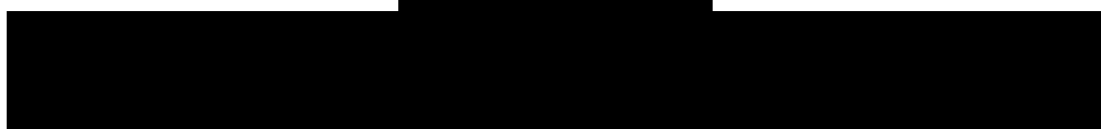
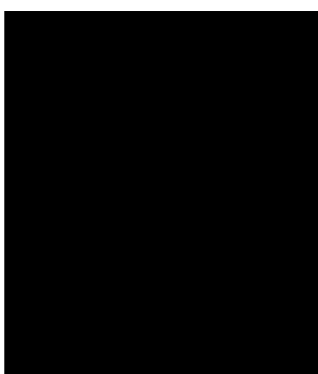






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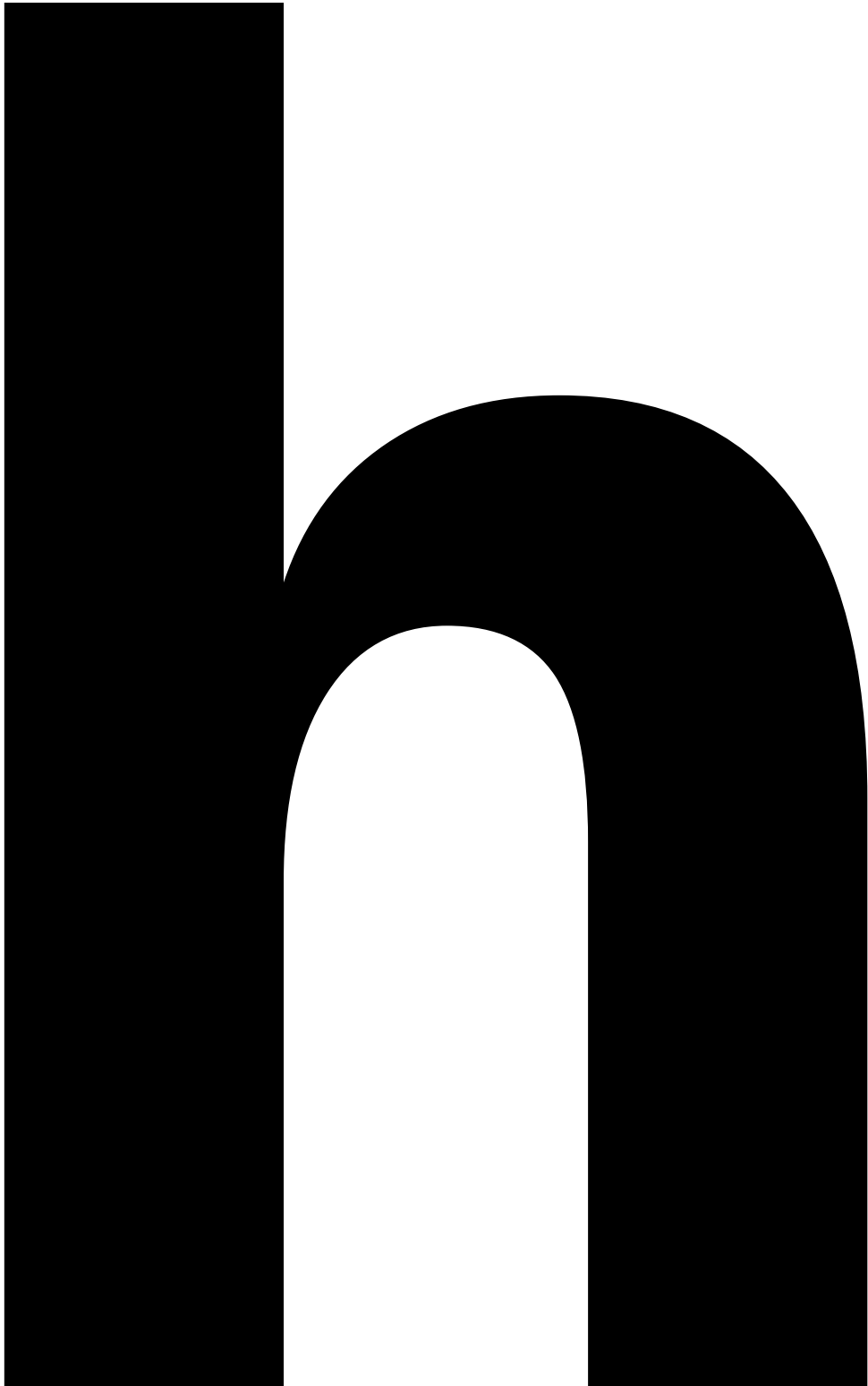






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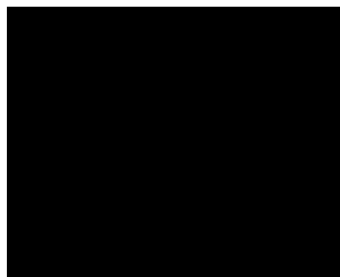
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S

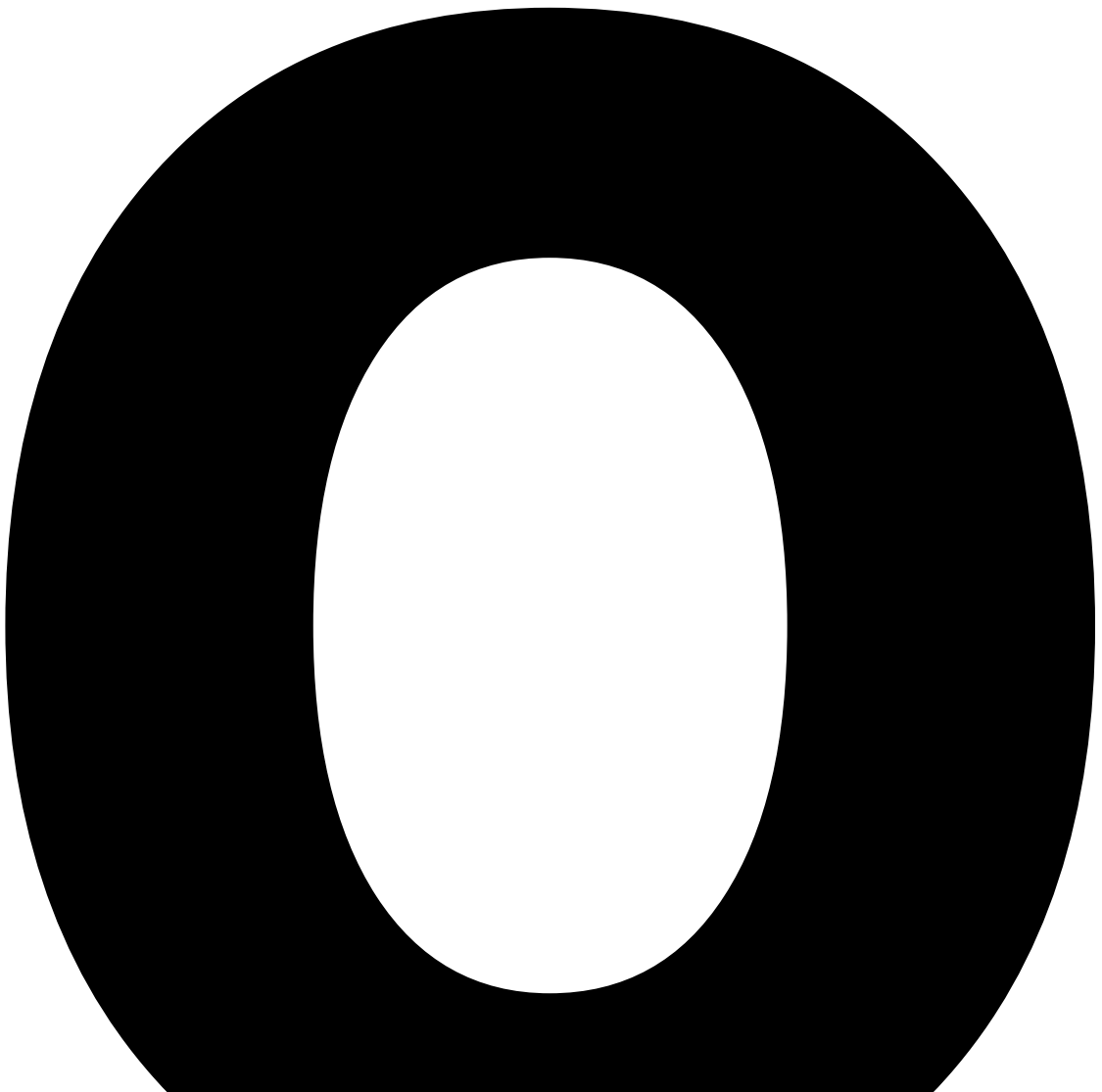






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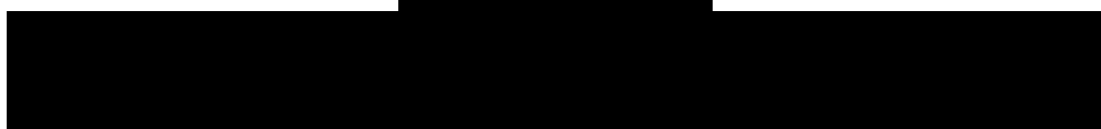
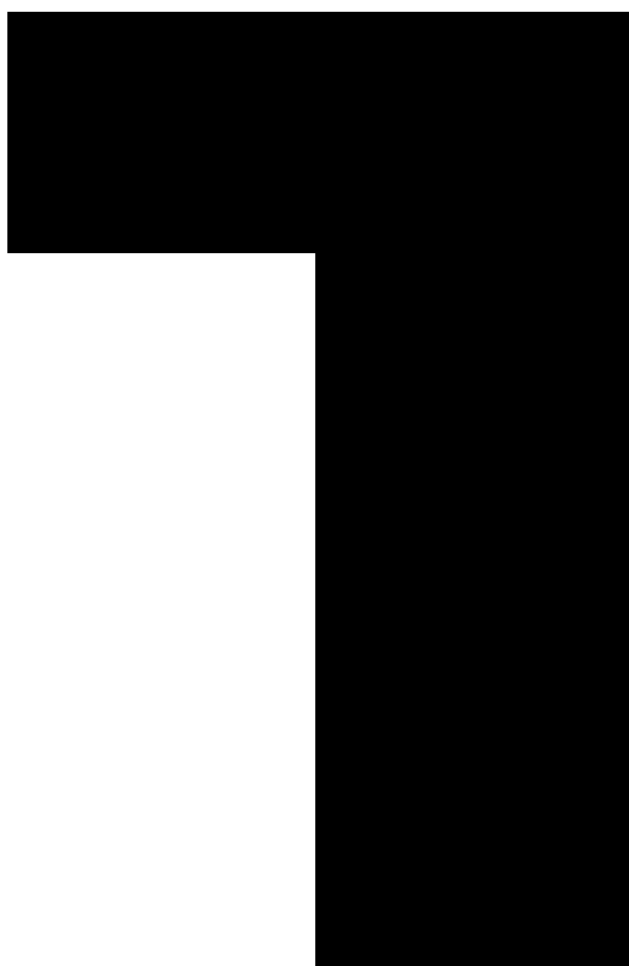
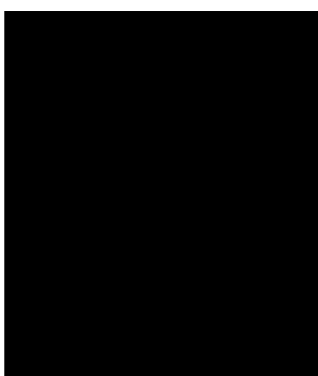


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**e**







Q



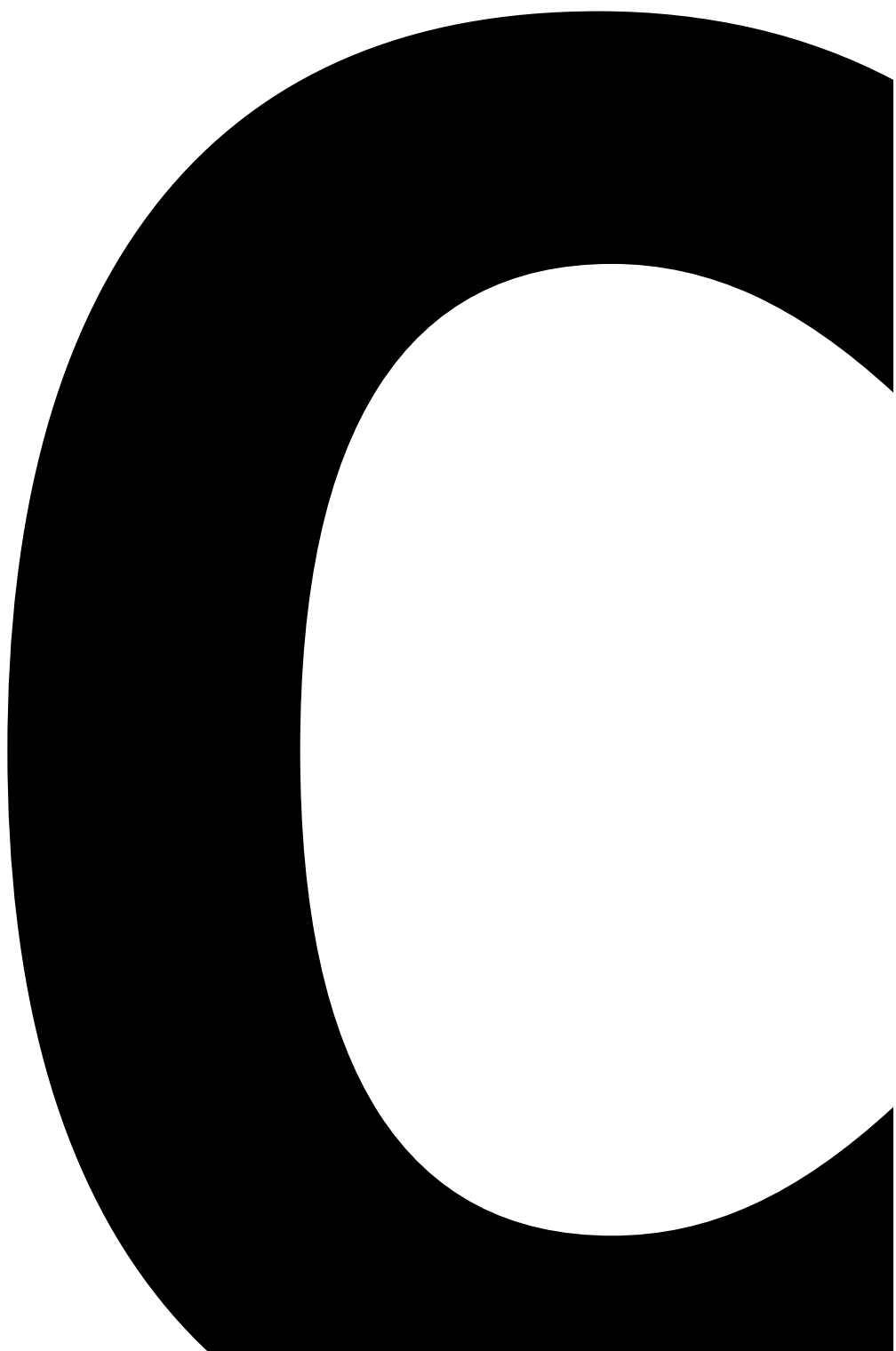


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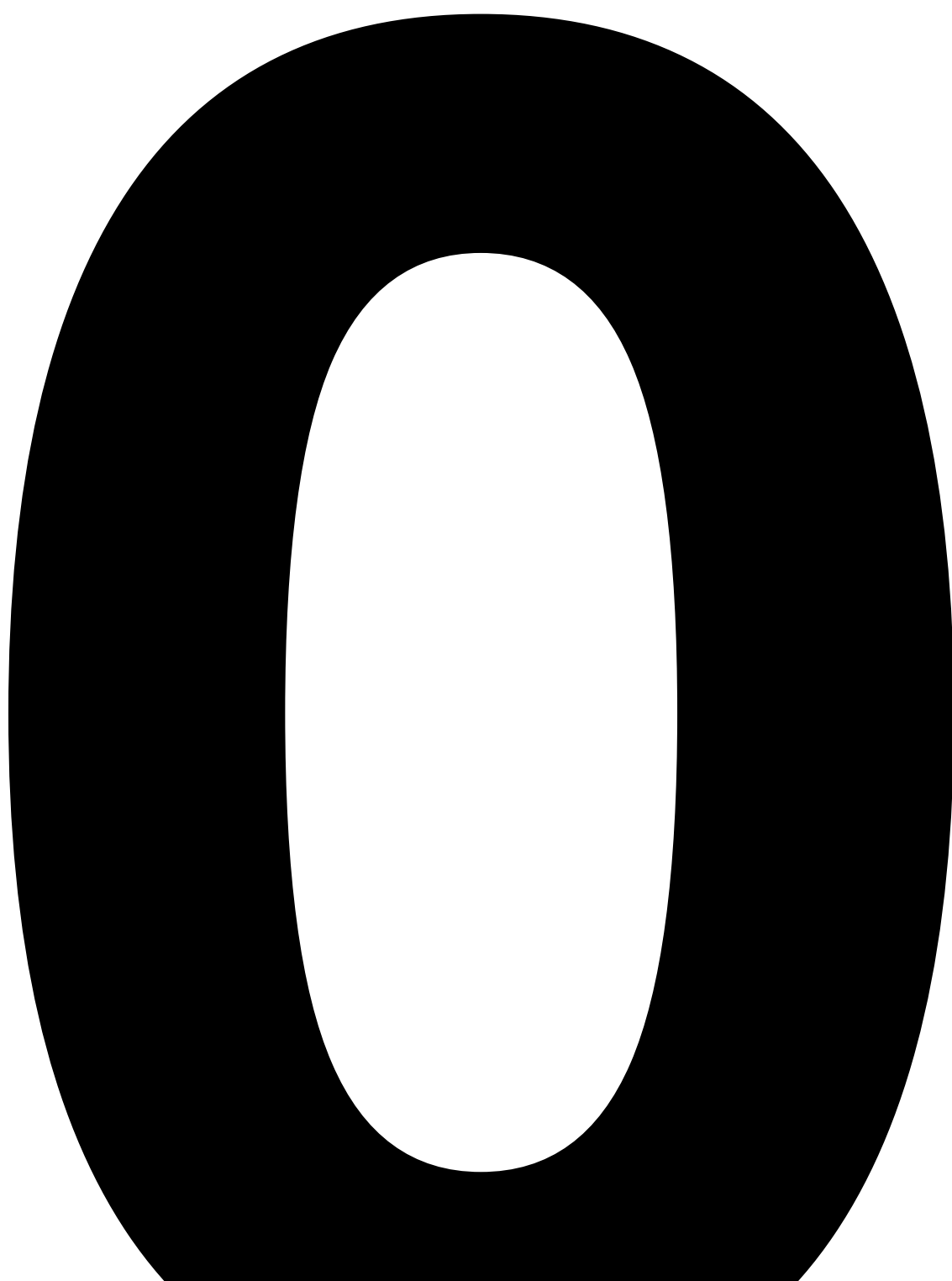


S











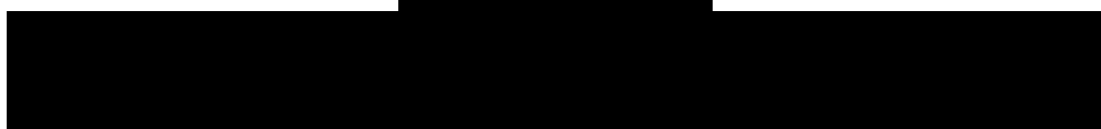
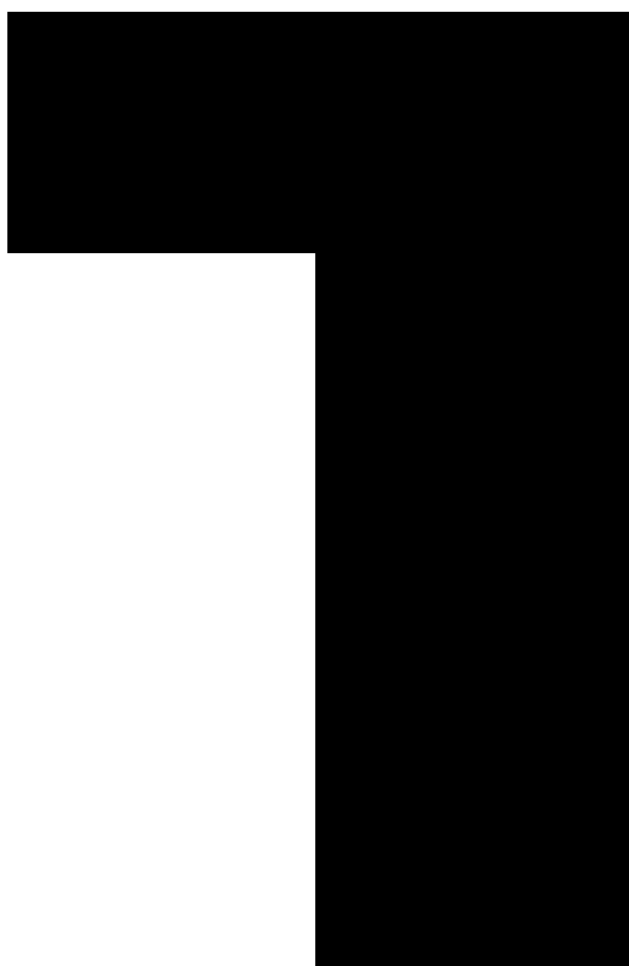
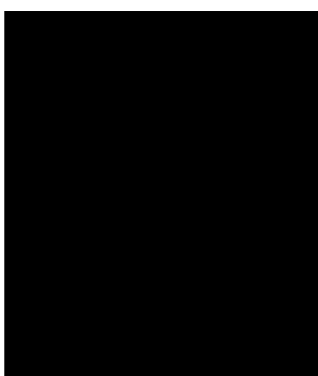


2



Q







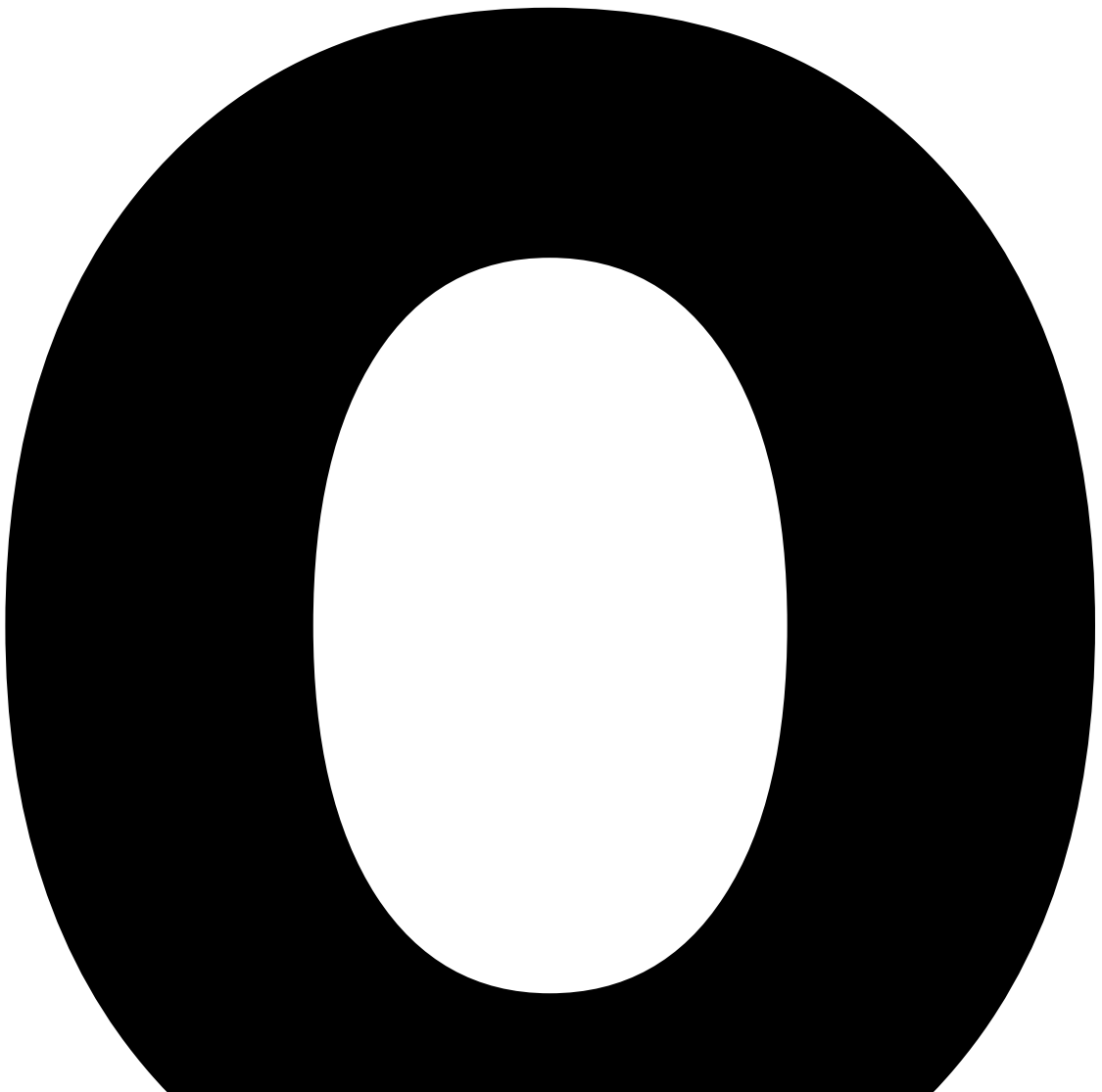
**e**





**R**







**J**



**J**





**e**



Q



**e**



S





**G**



**J**



5



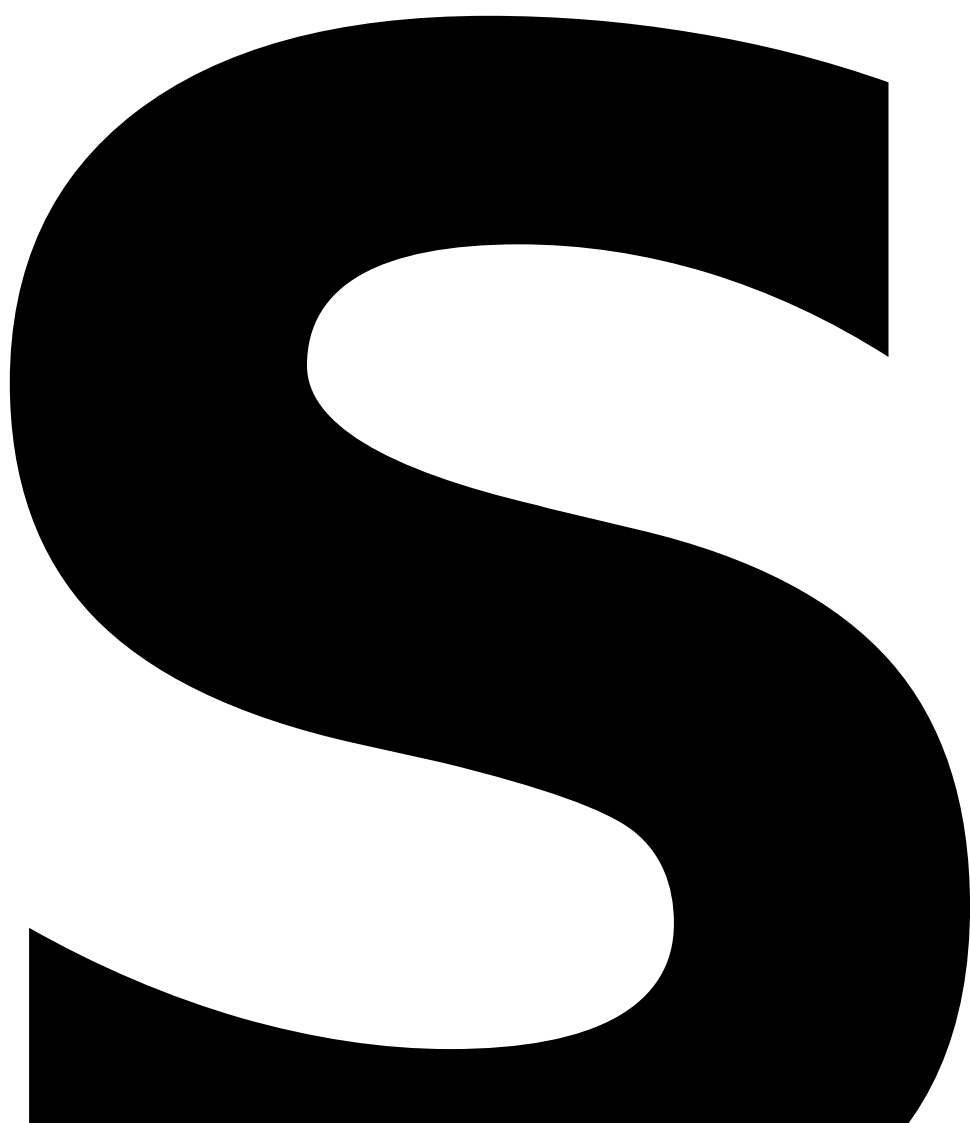
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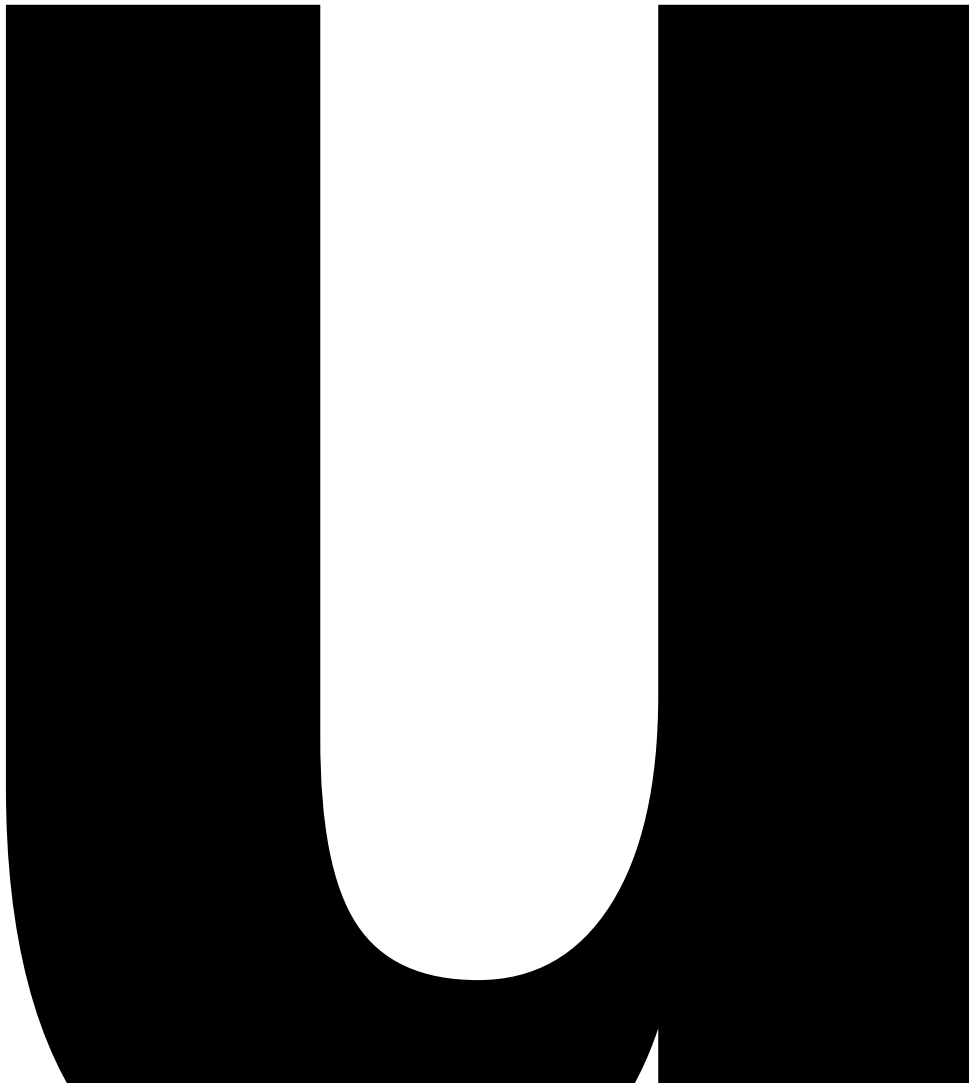
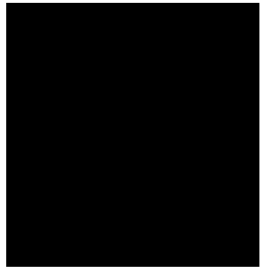


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**bo**



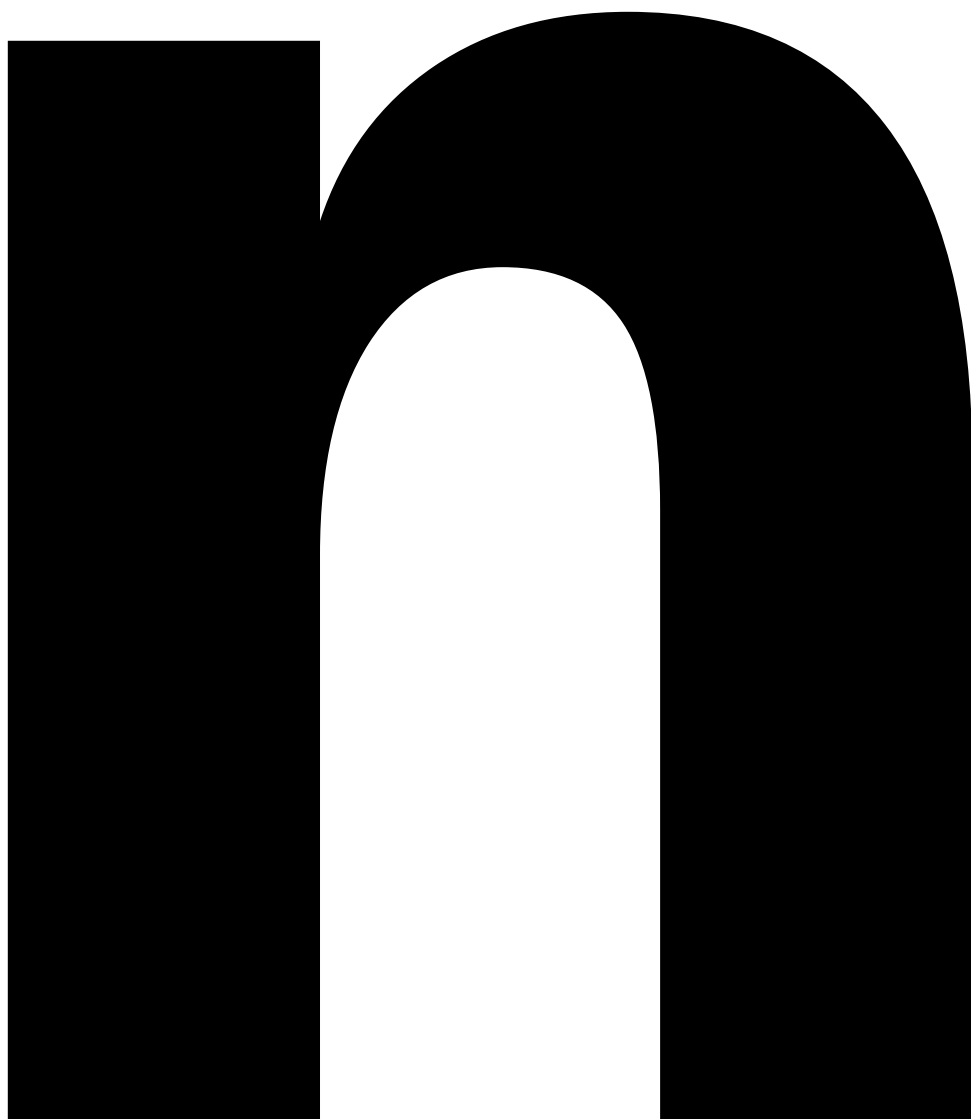


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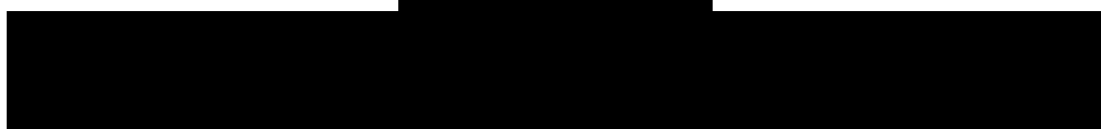
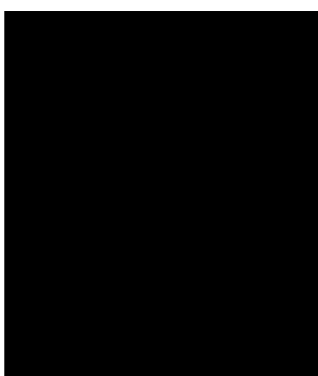






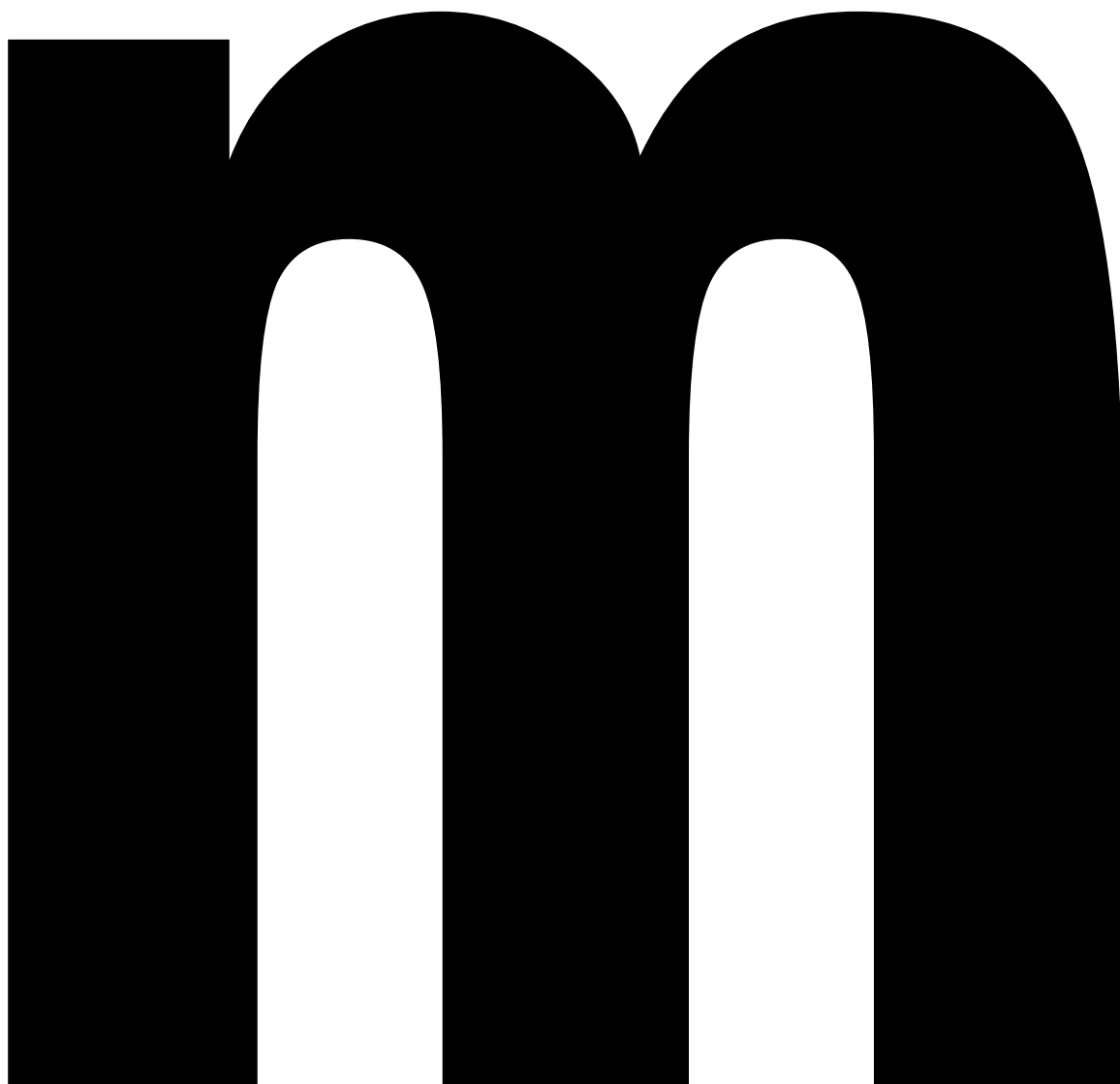




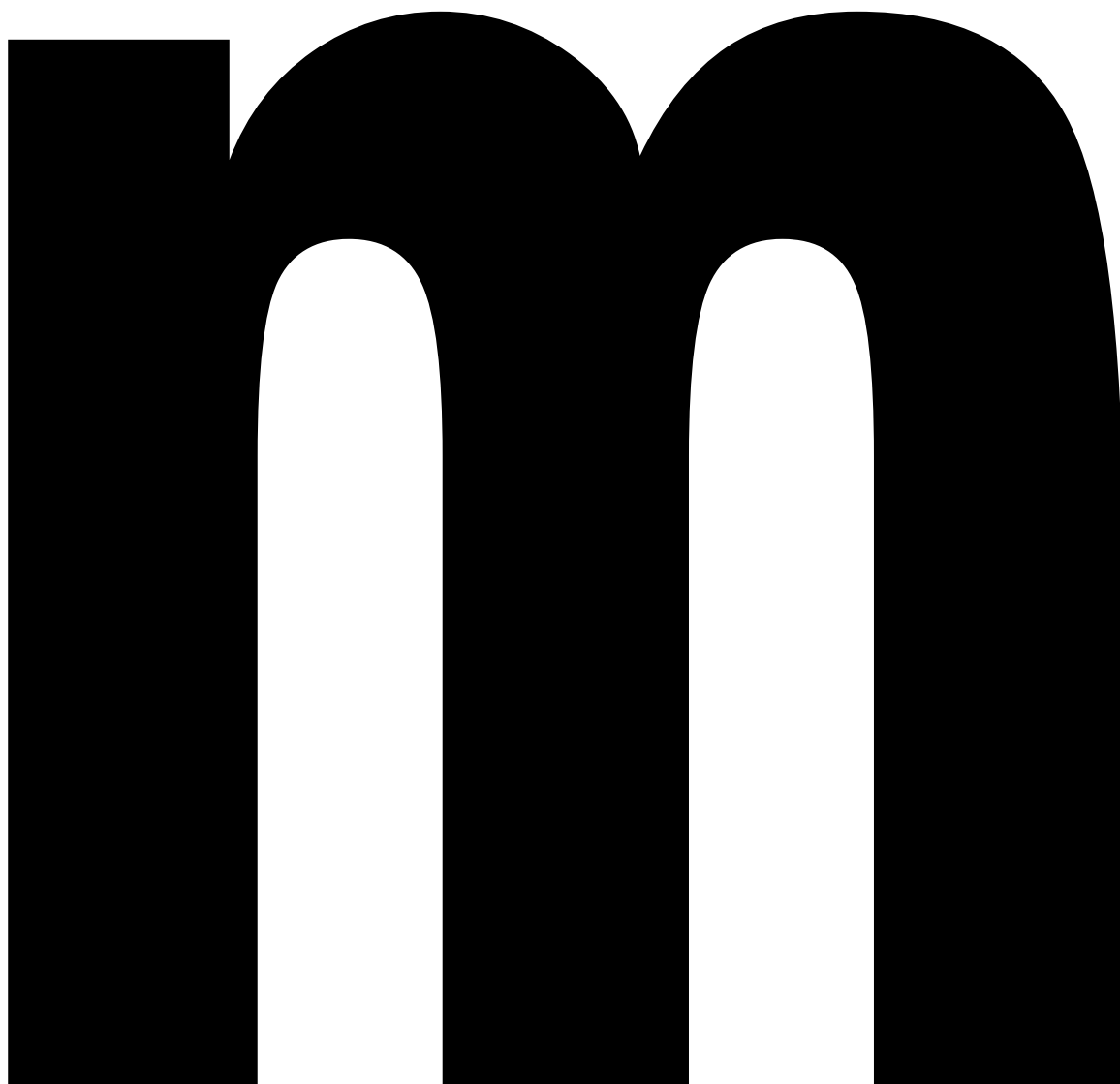




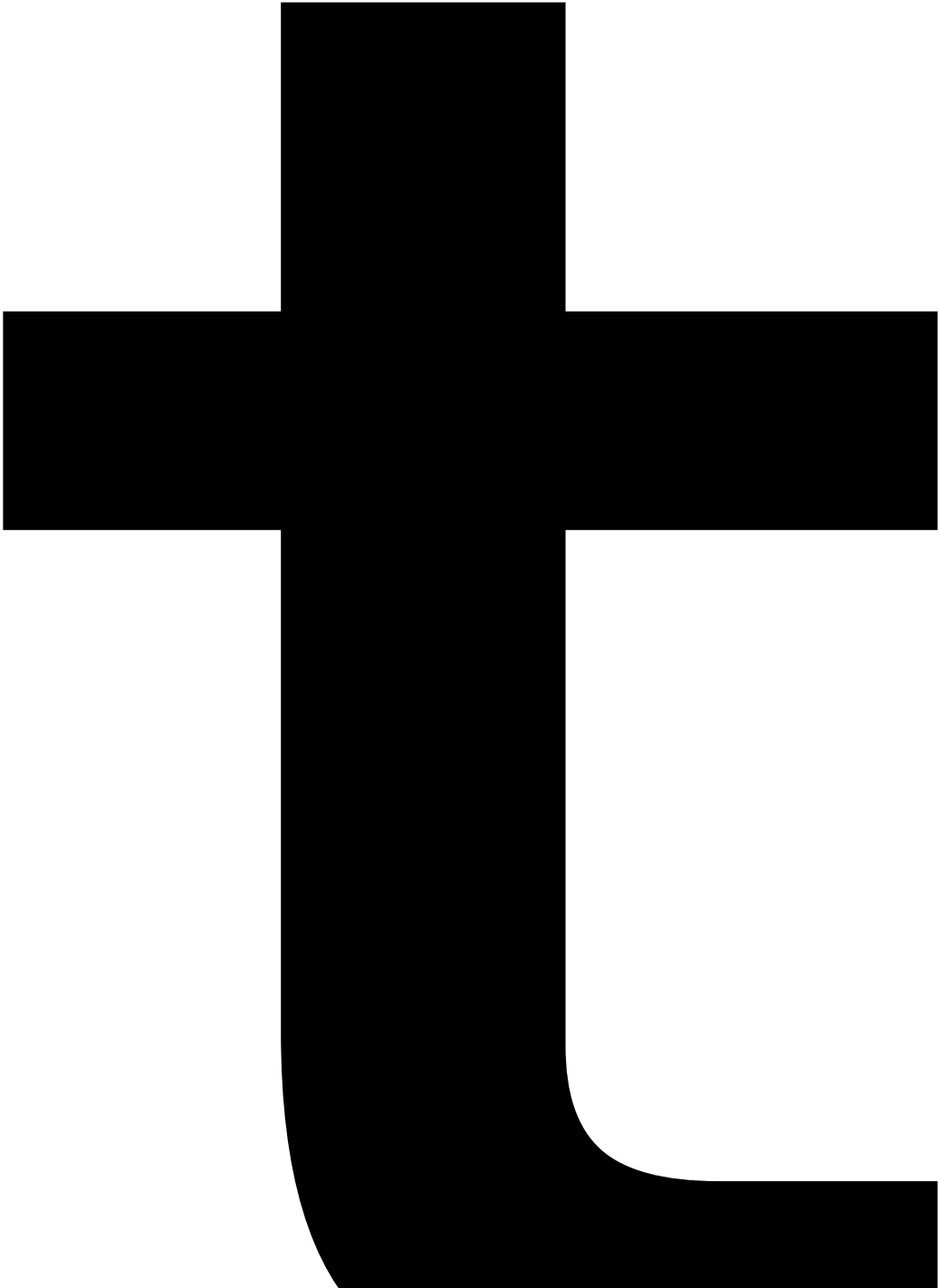




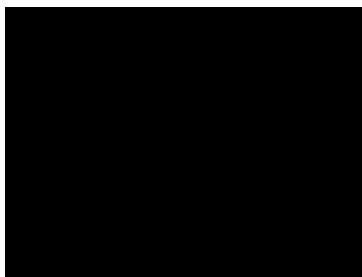


















**P**



**u**



**r**



**e**





**r**



**U**



**n**



**S**









**n**



**n**



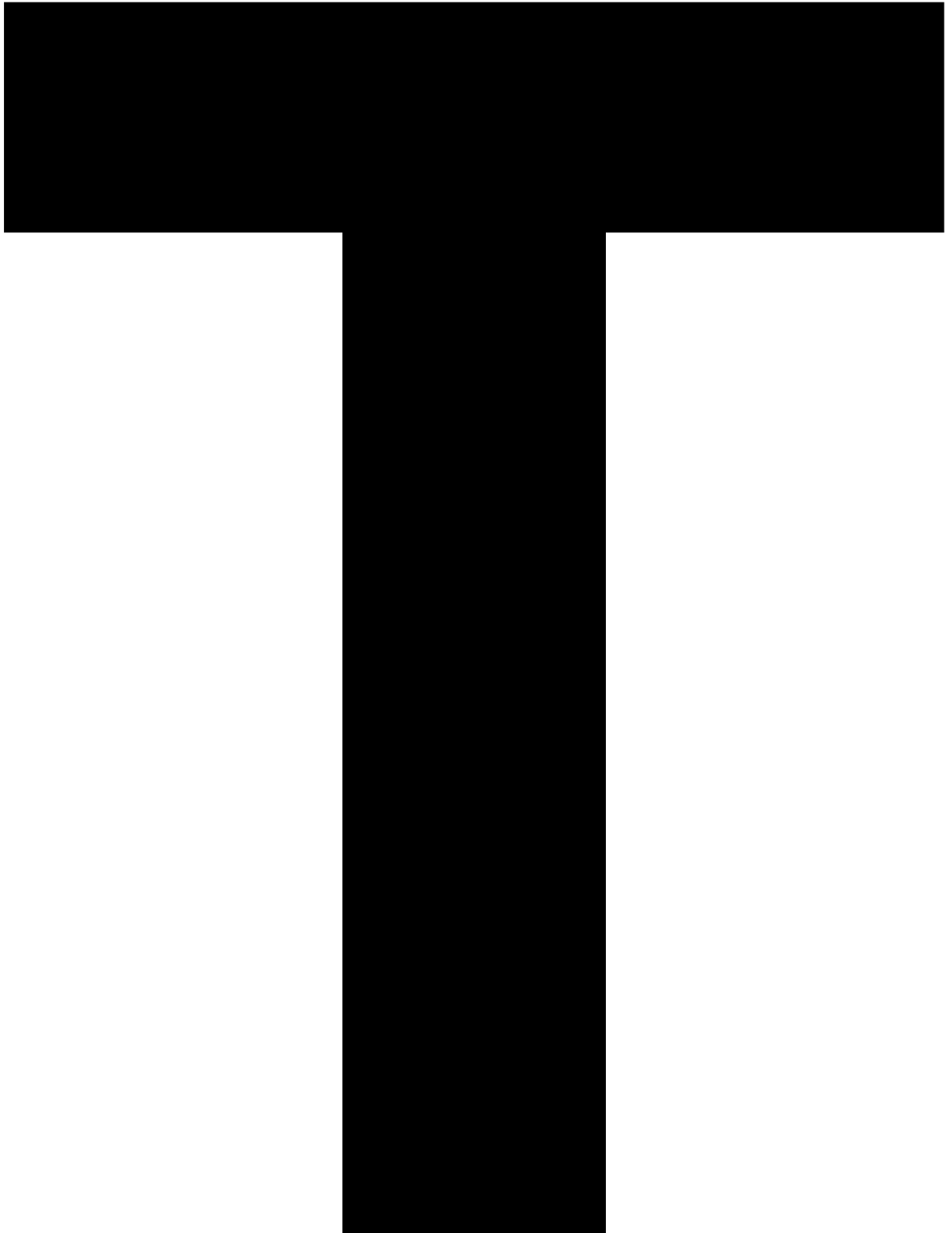




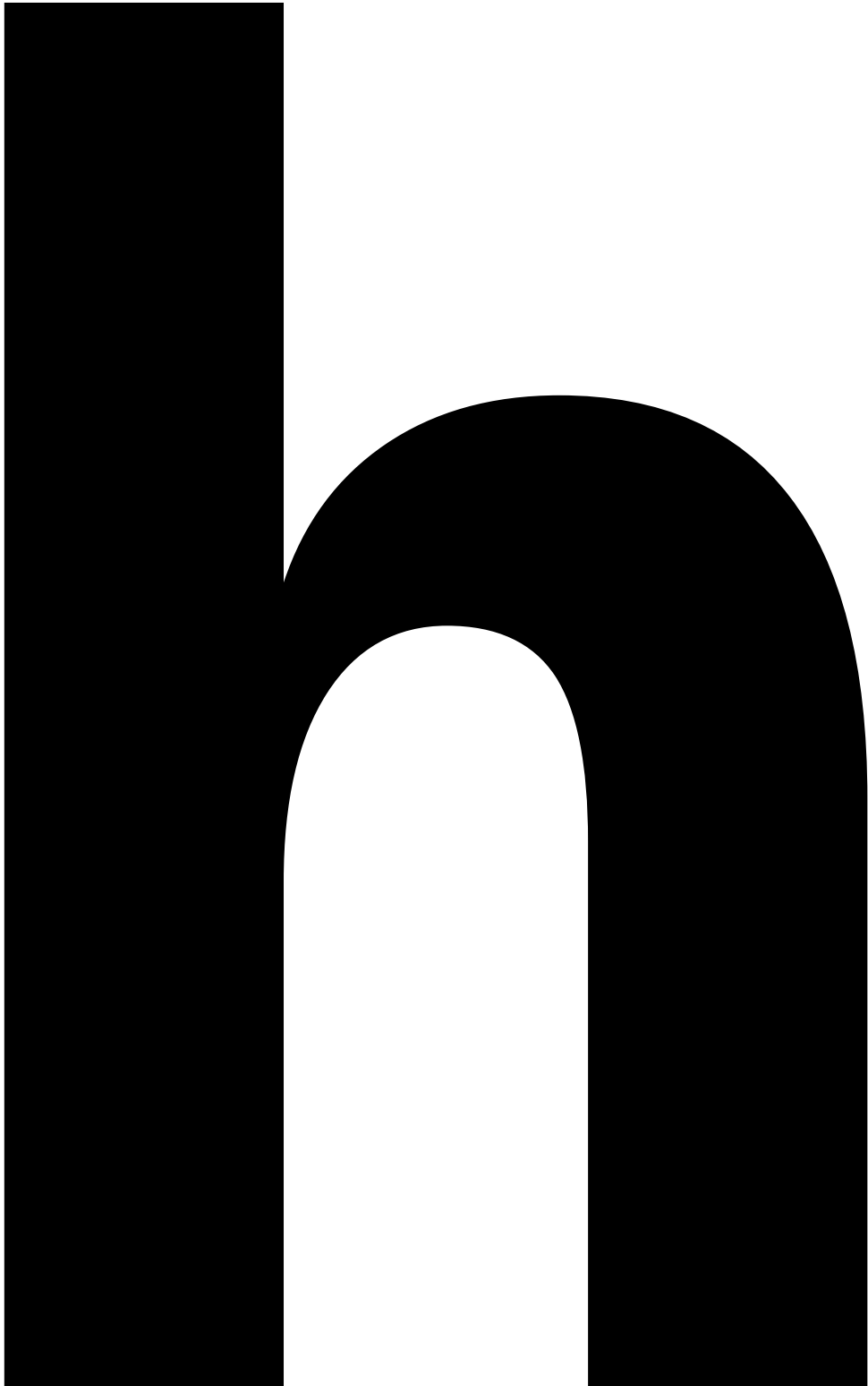














**e**





S

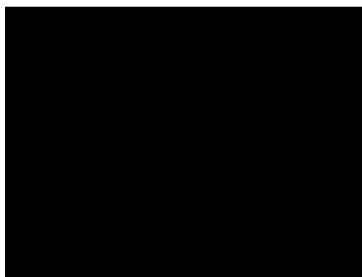
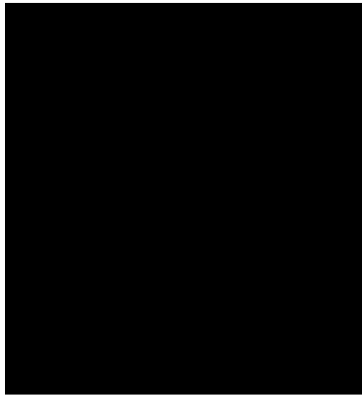


**e**



**5**









**D**



**5**



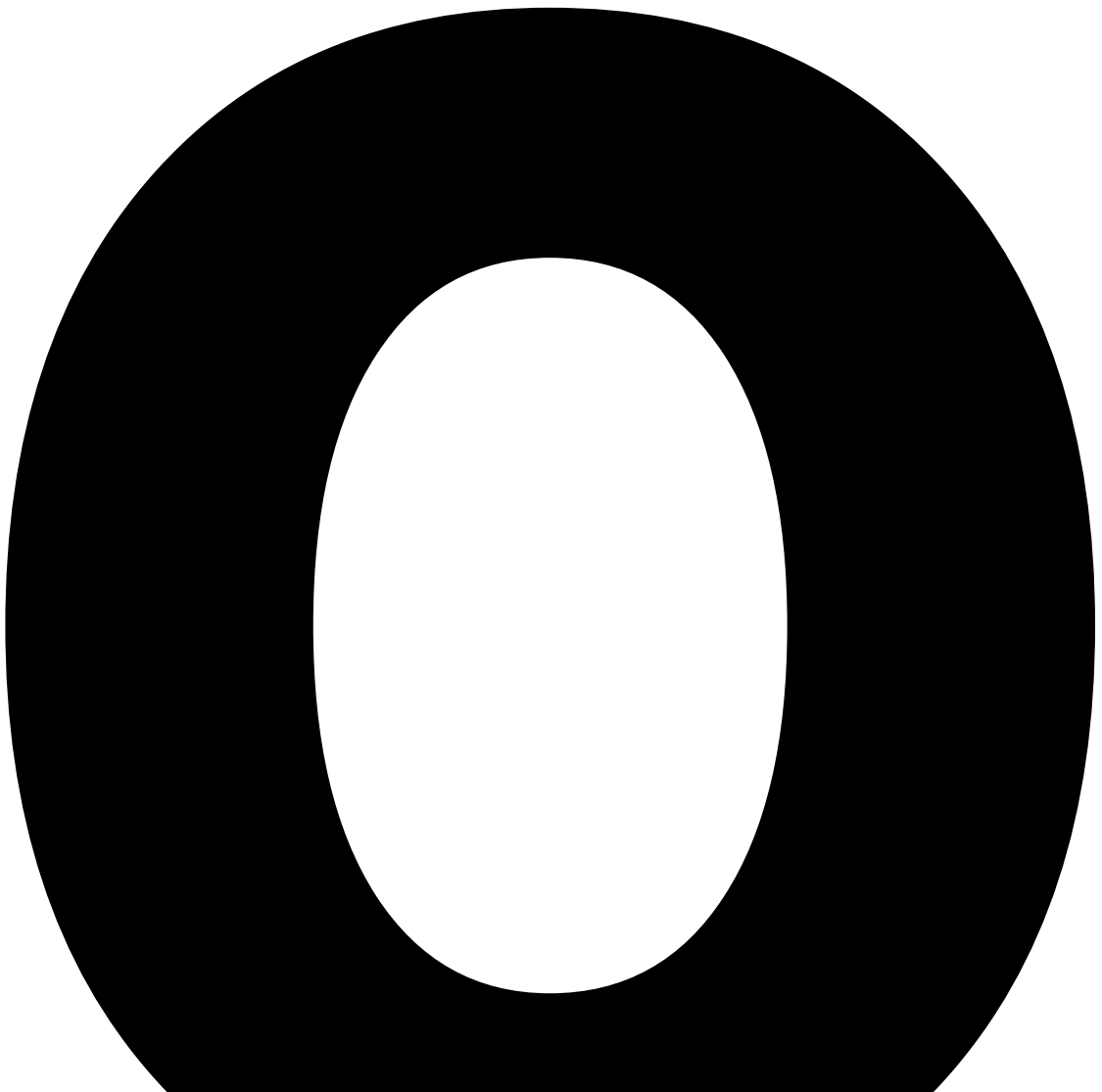
S



**V**







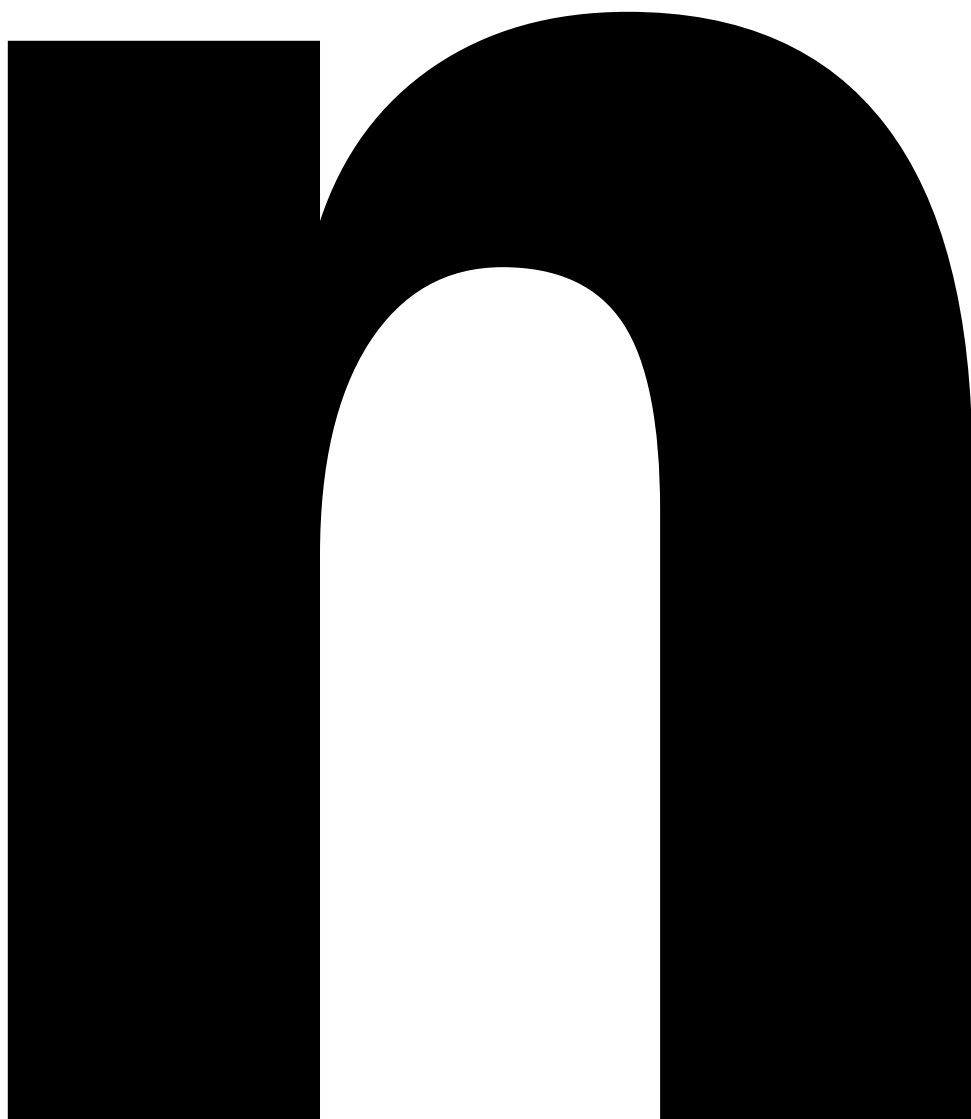






**U**









S

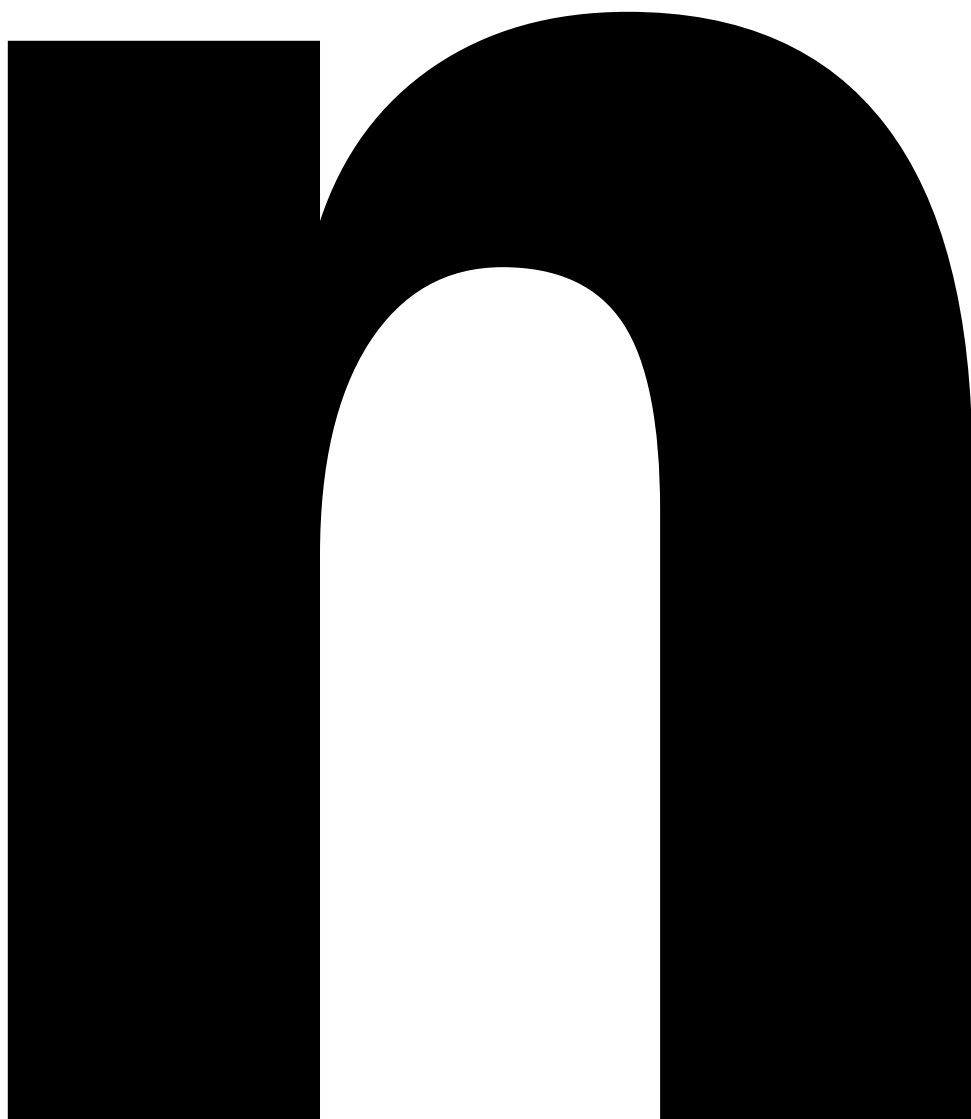


**M**



**e**







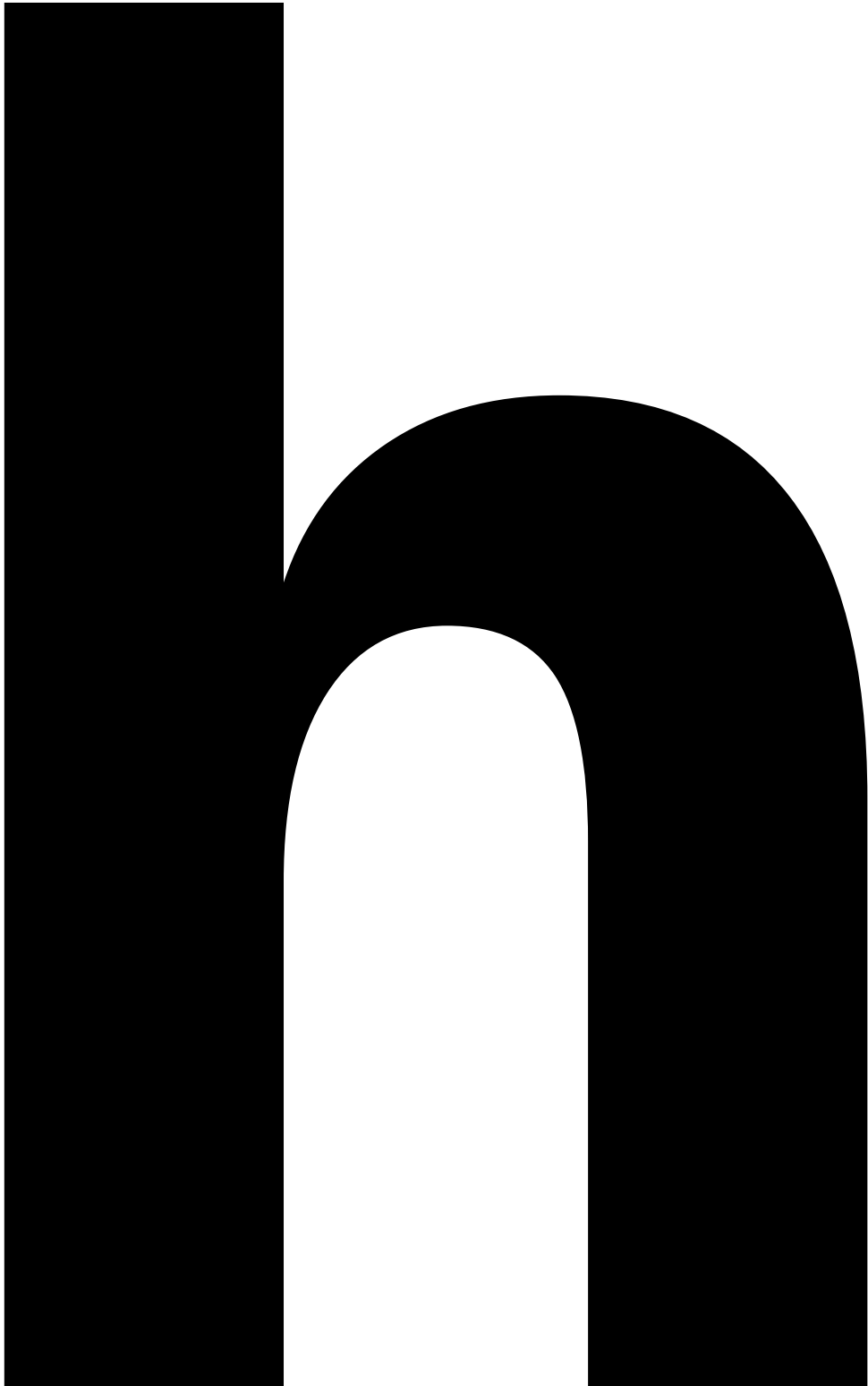


S







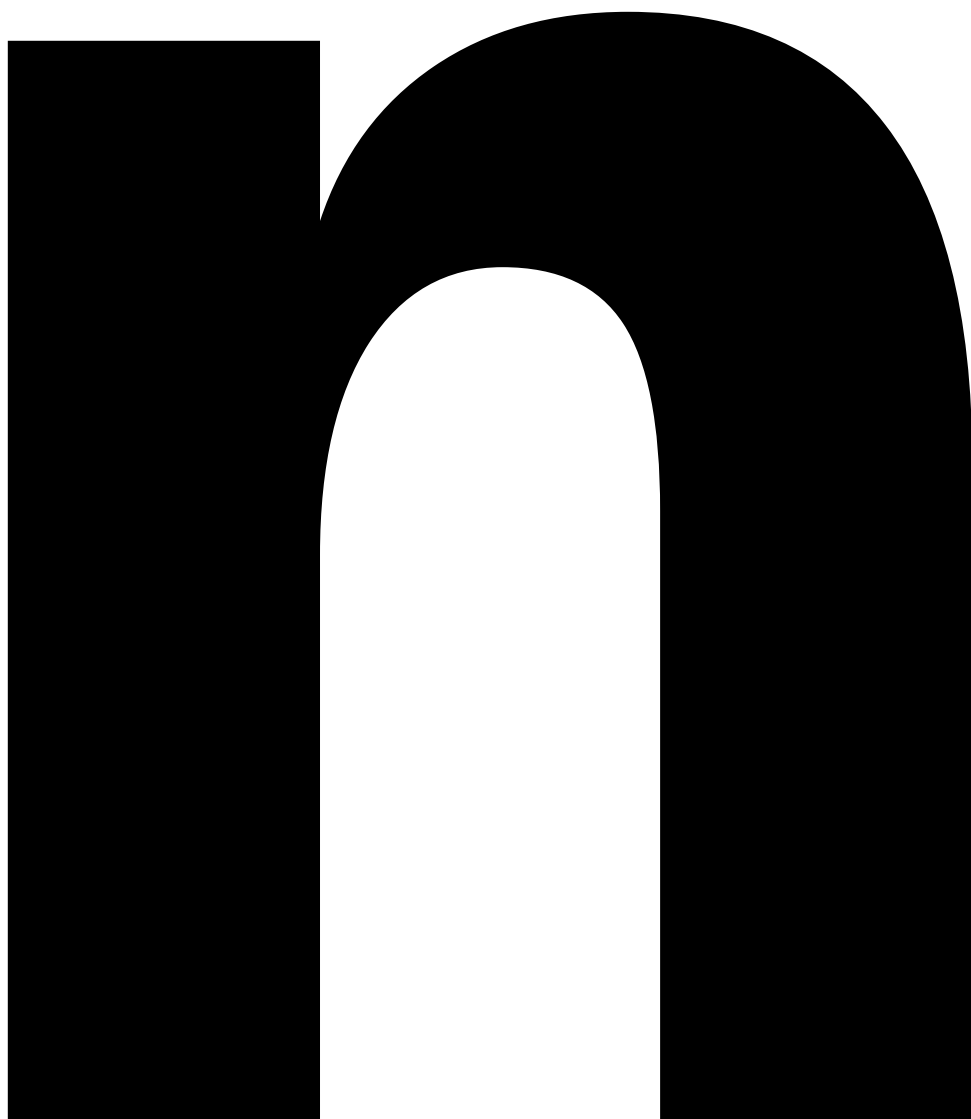




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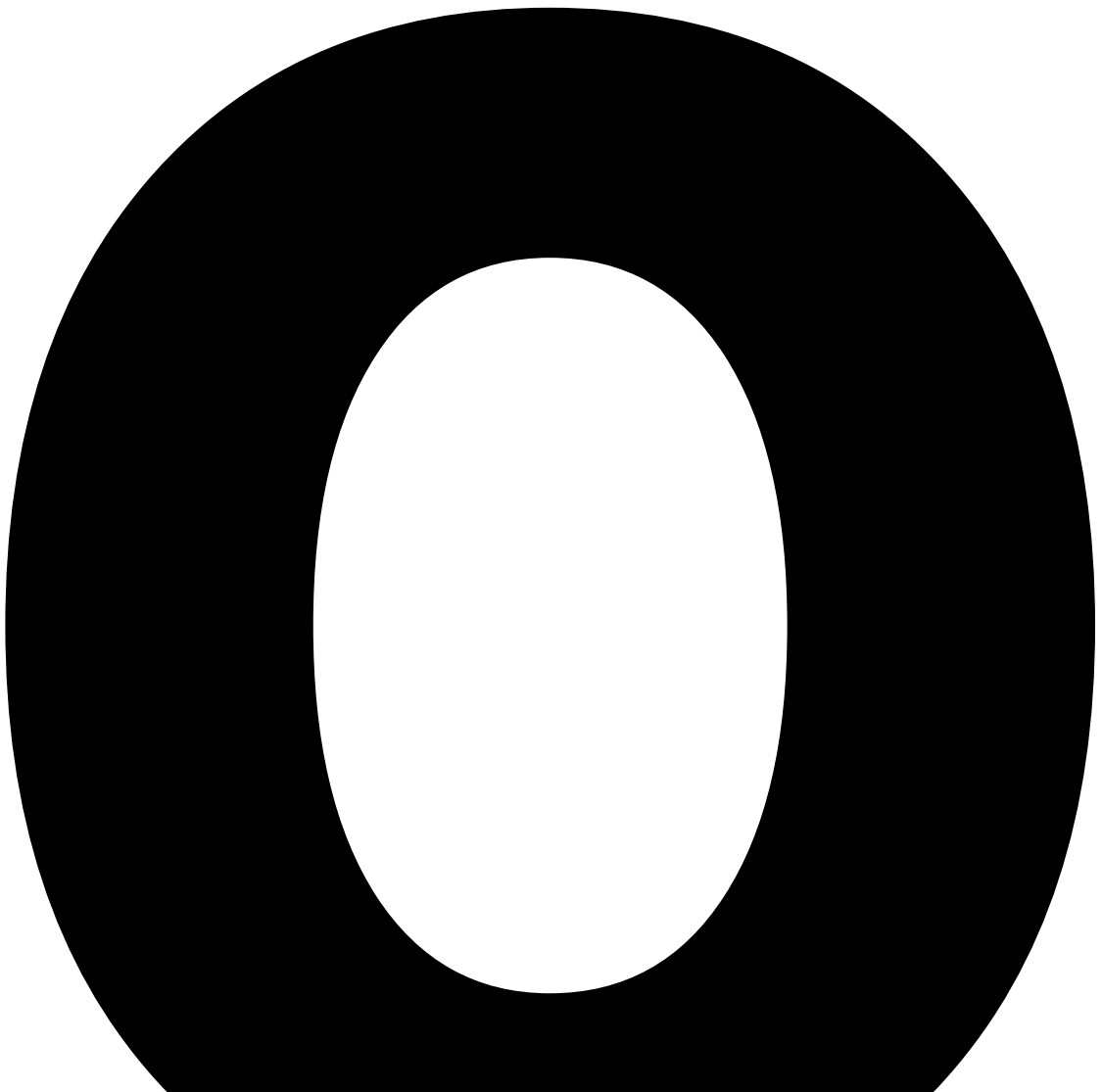


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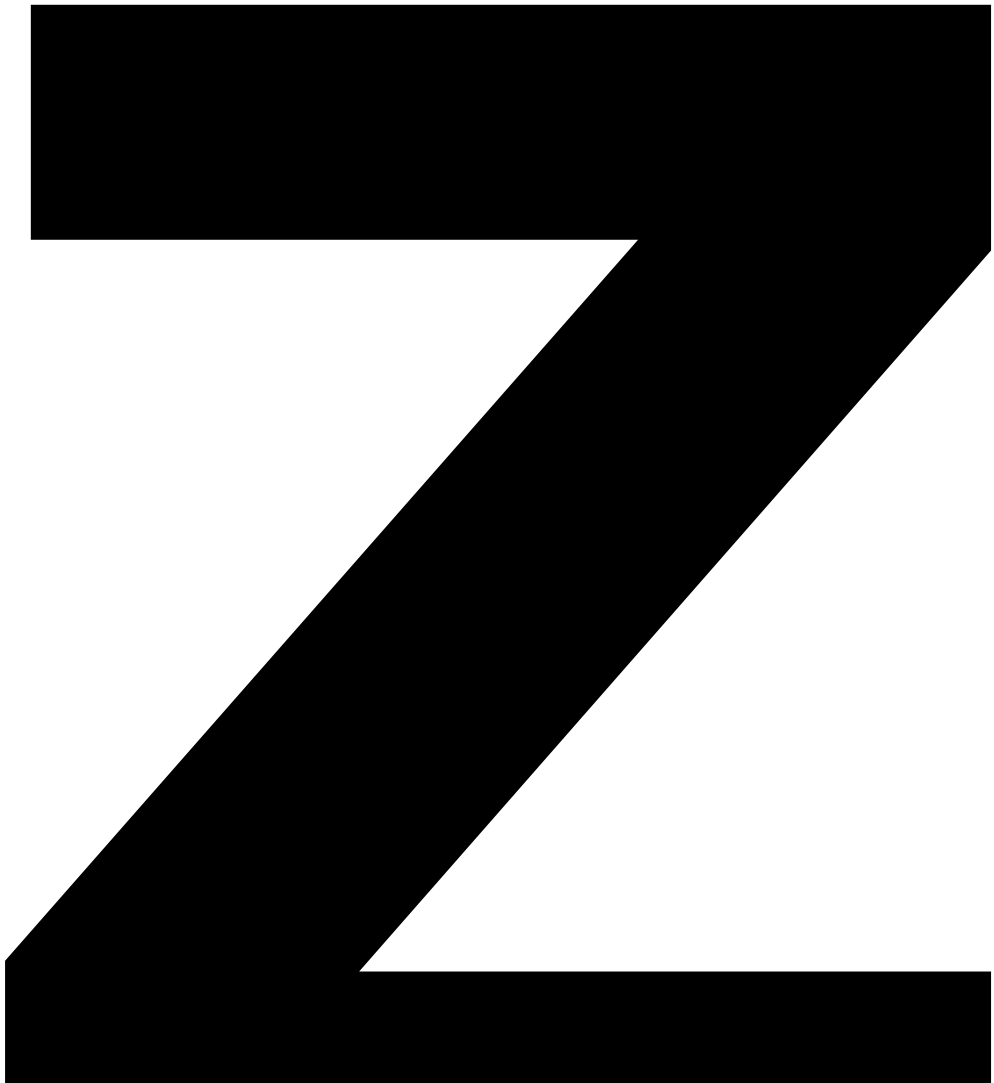


Q

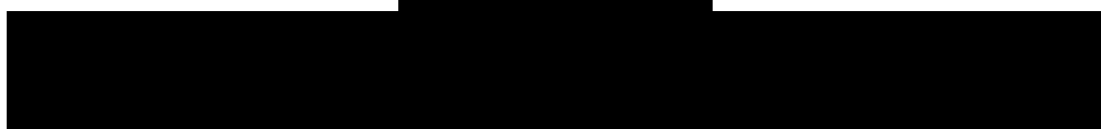
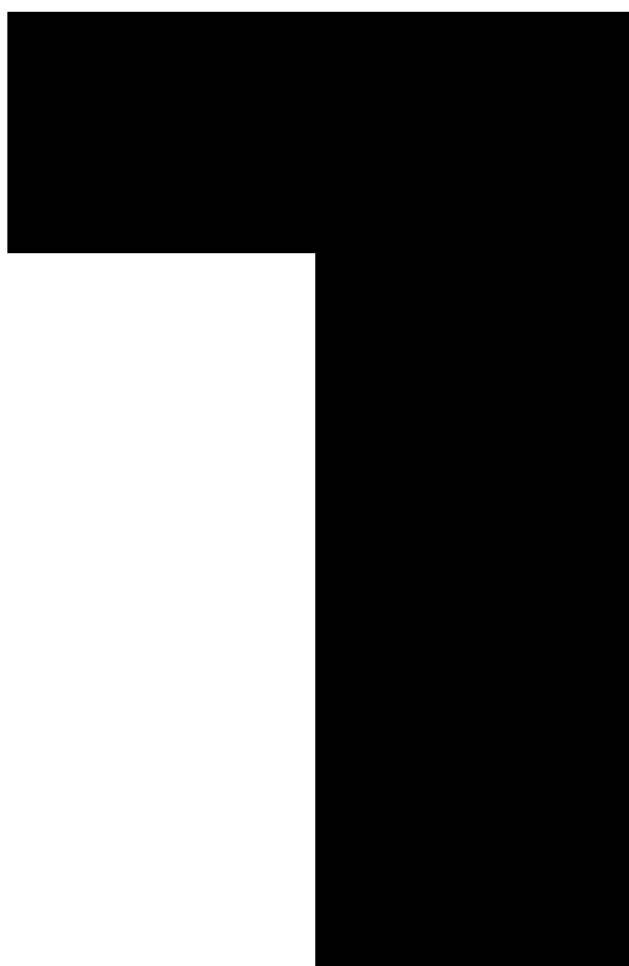
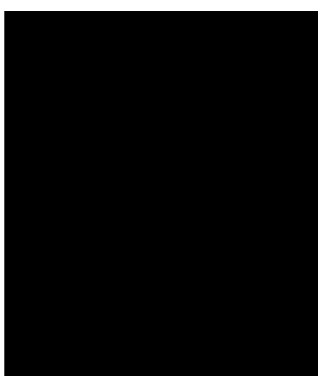


U











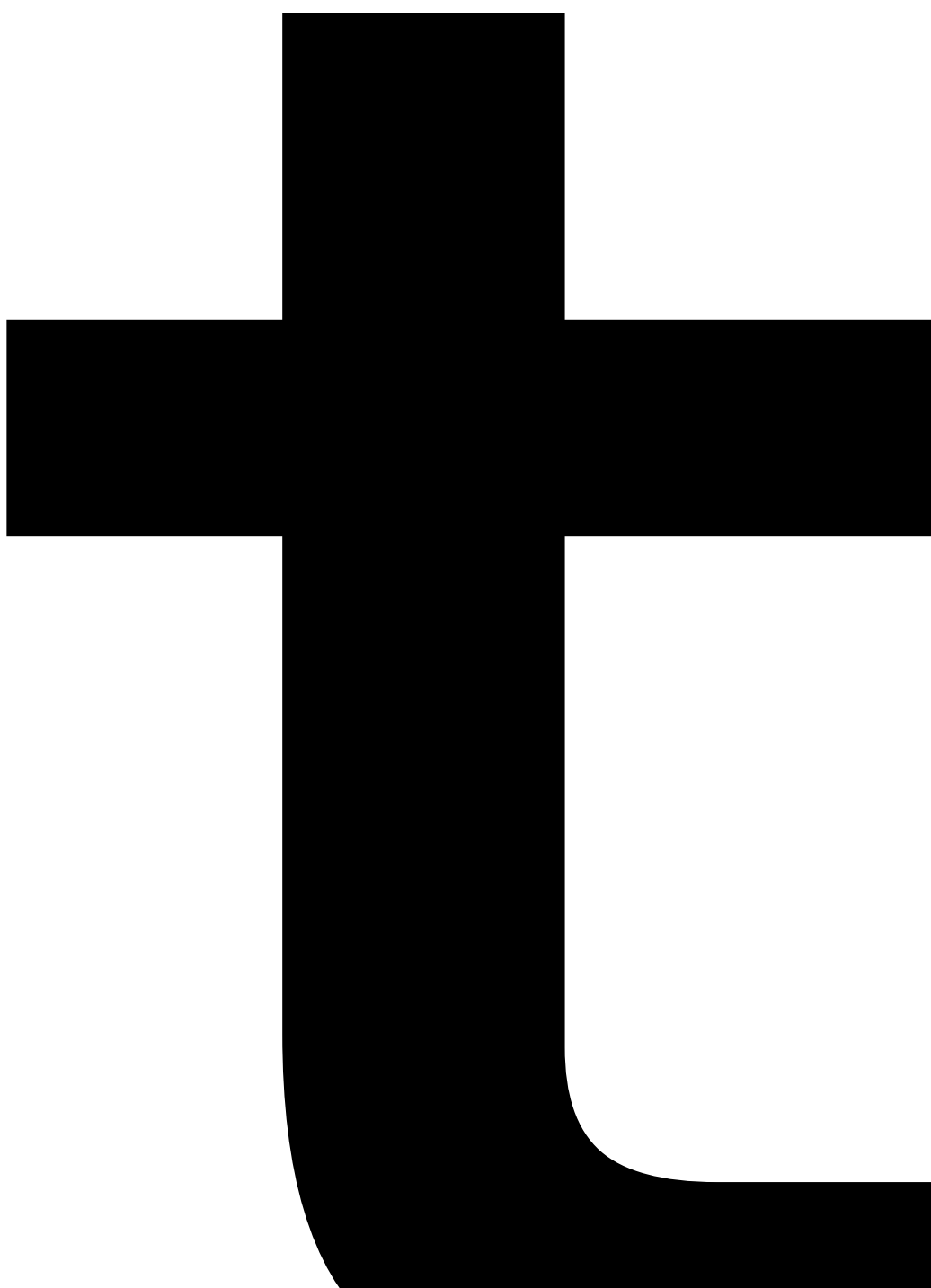


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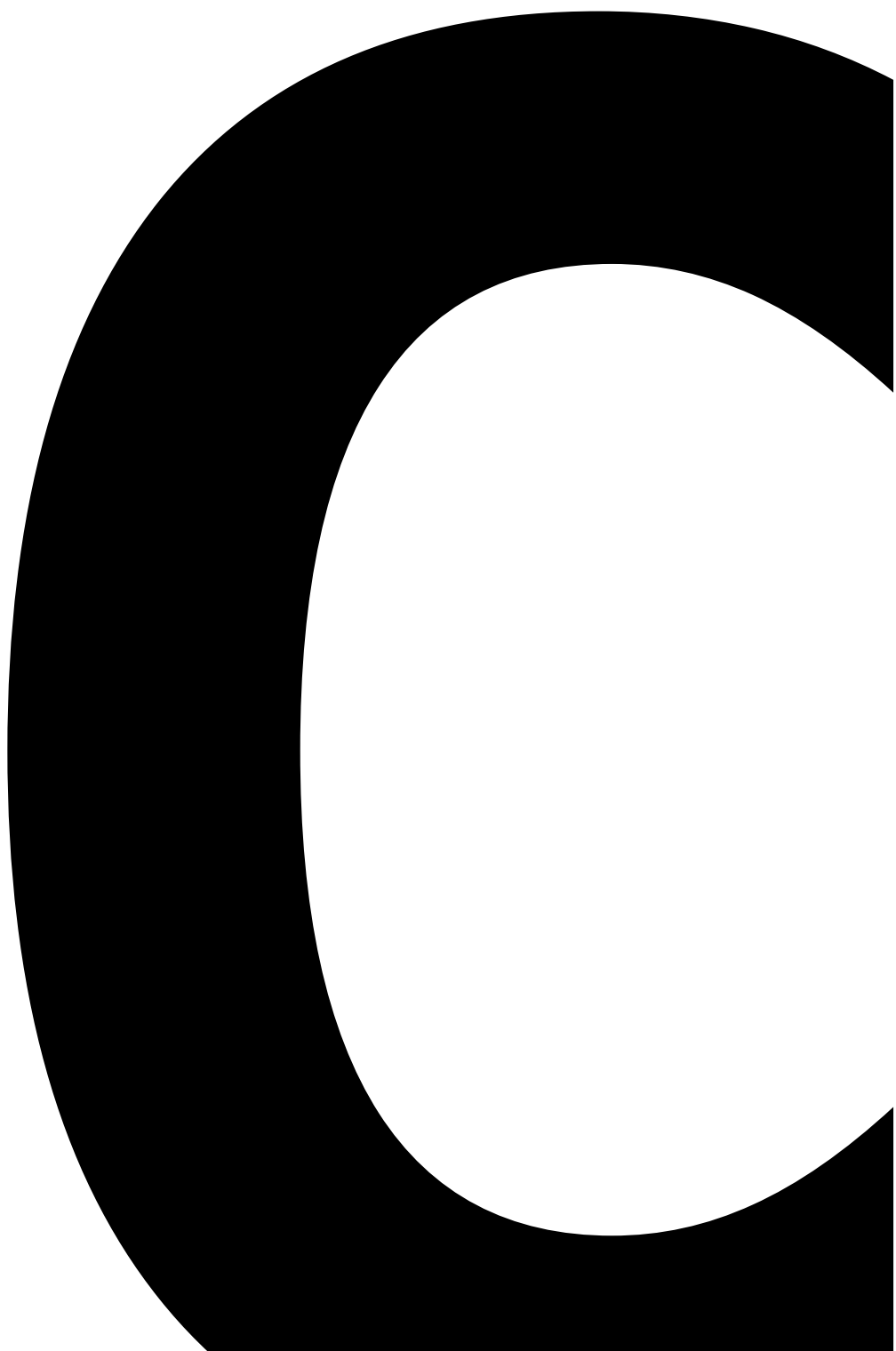




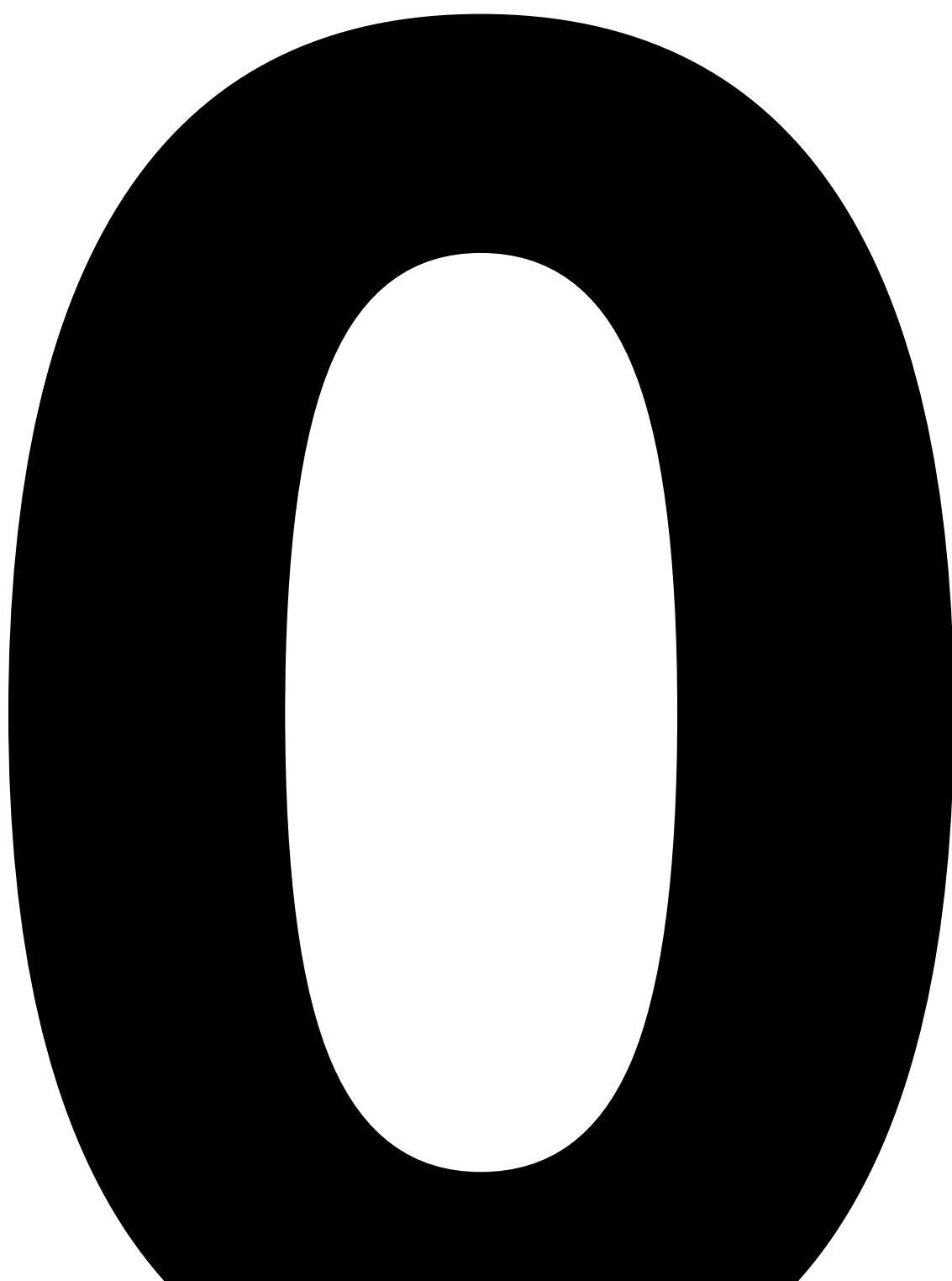
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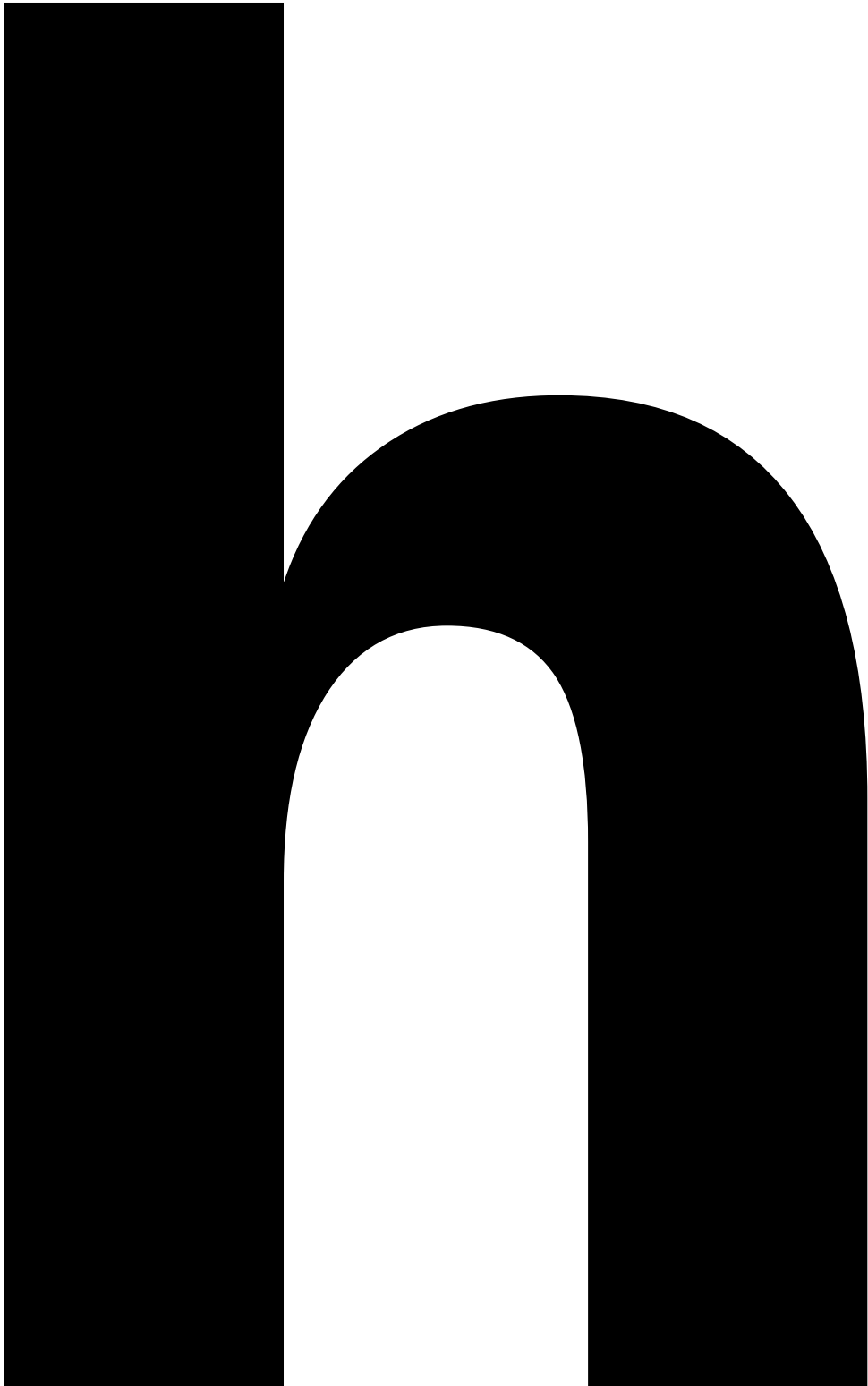






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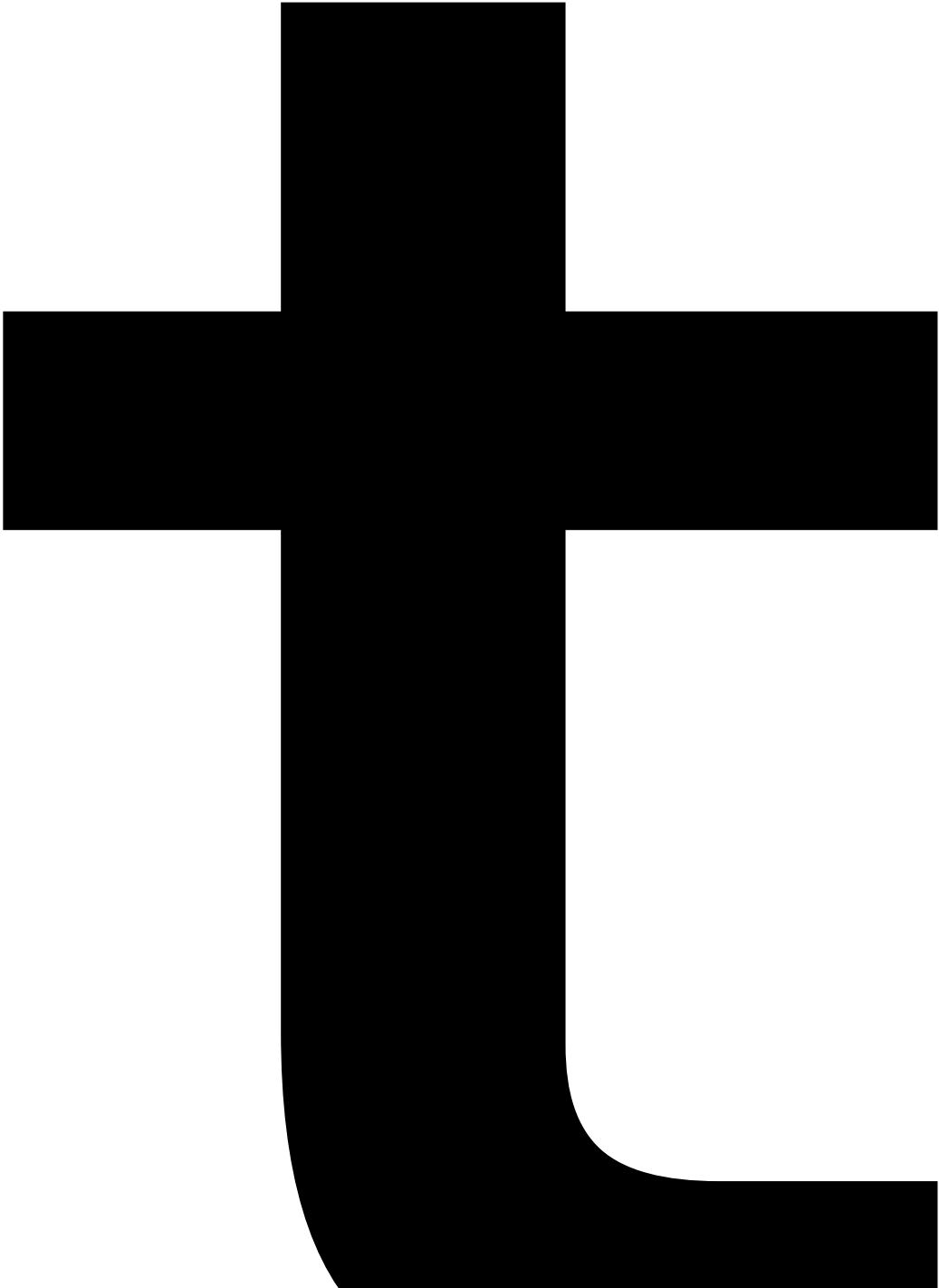






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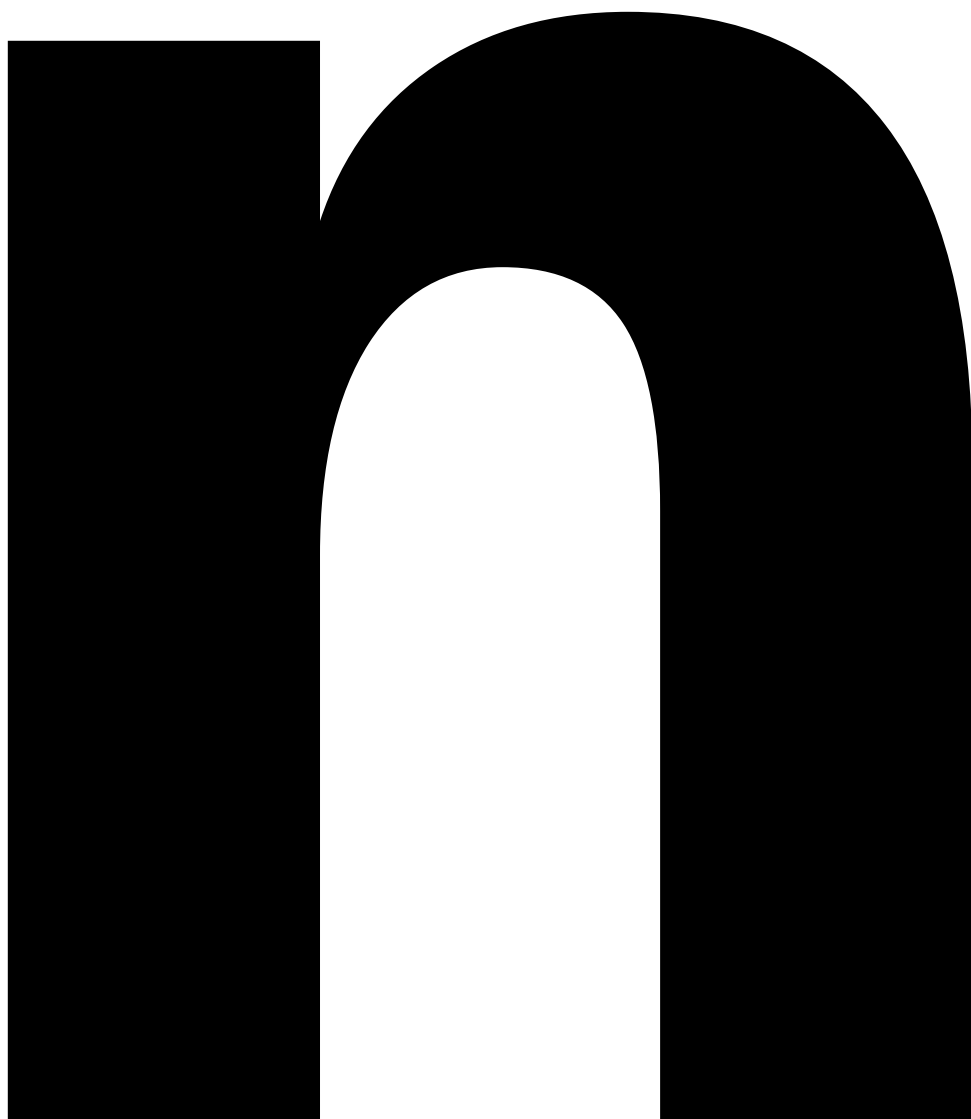
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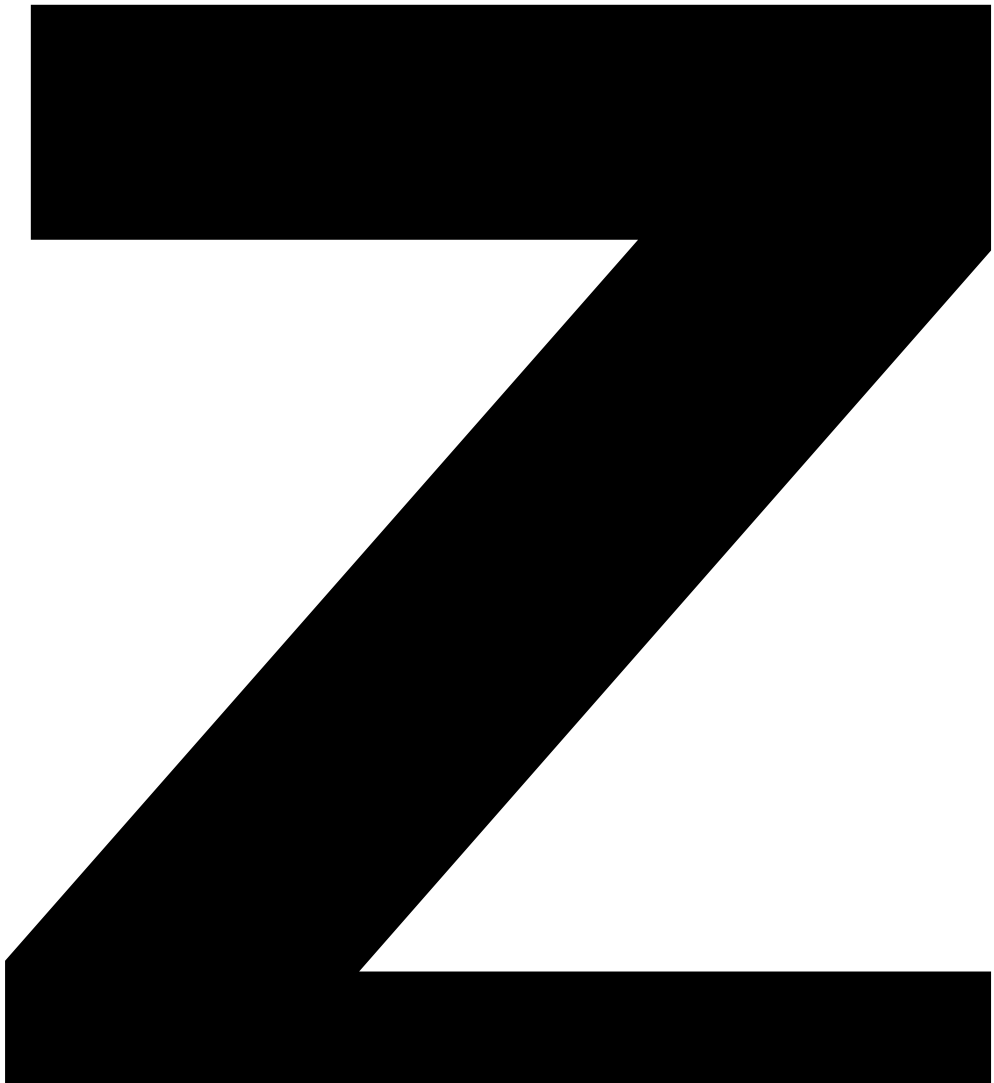
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**bo**



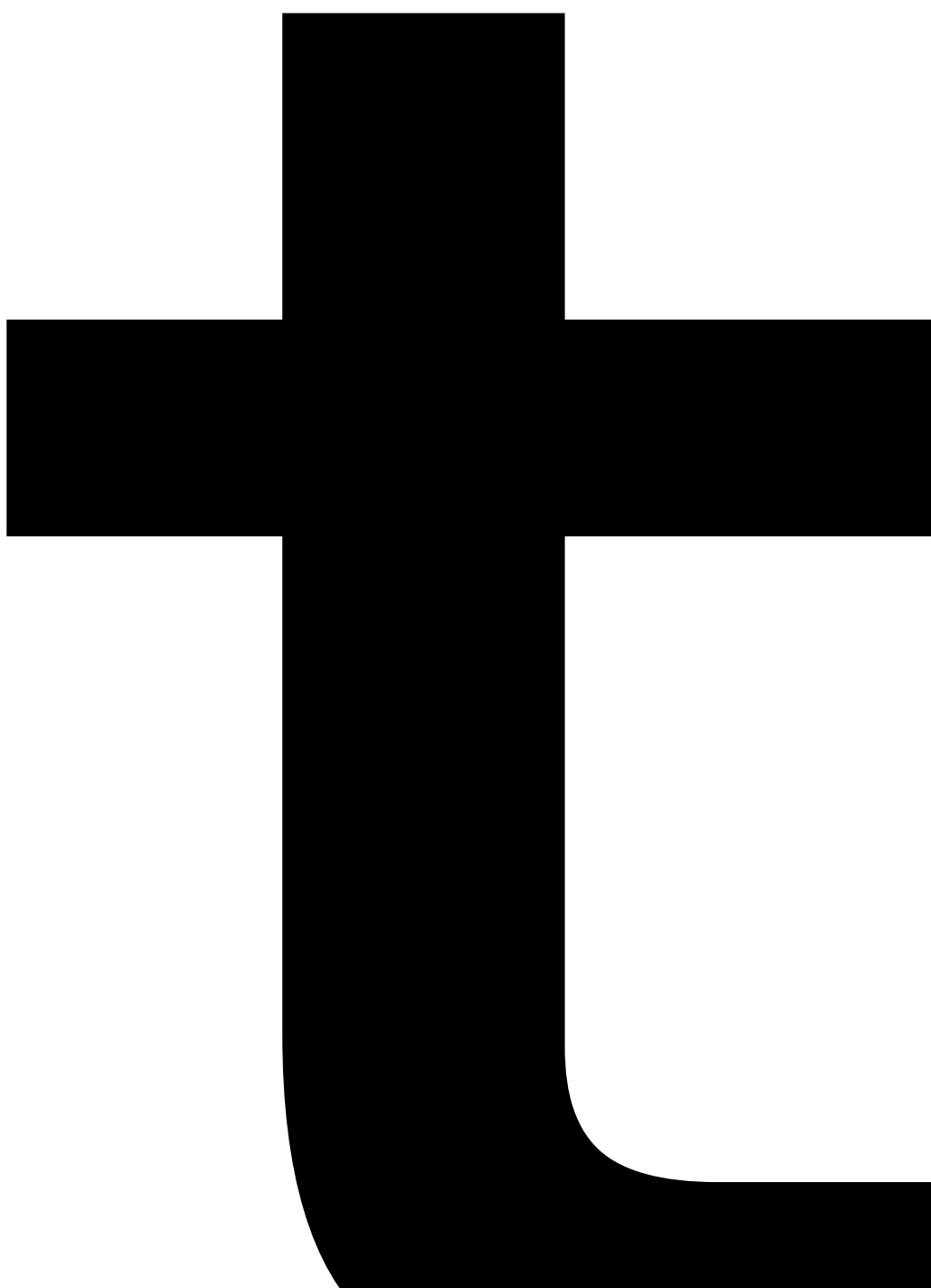
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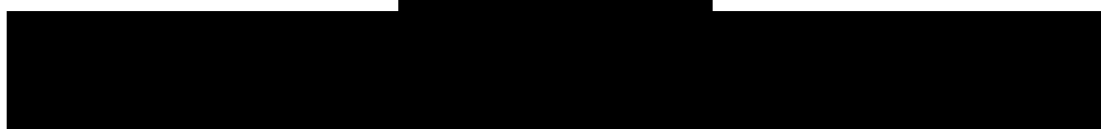
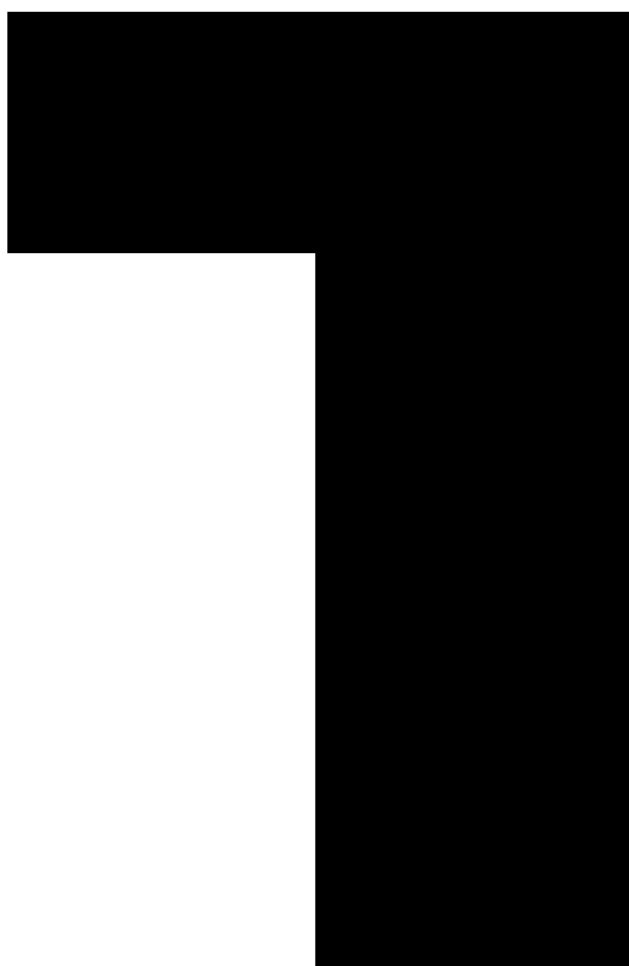
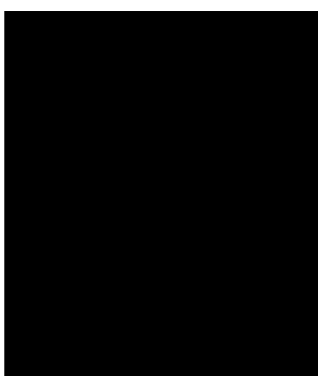


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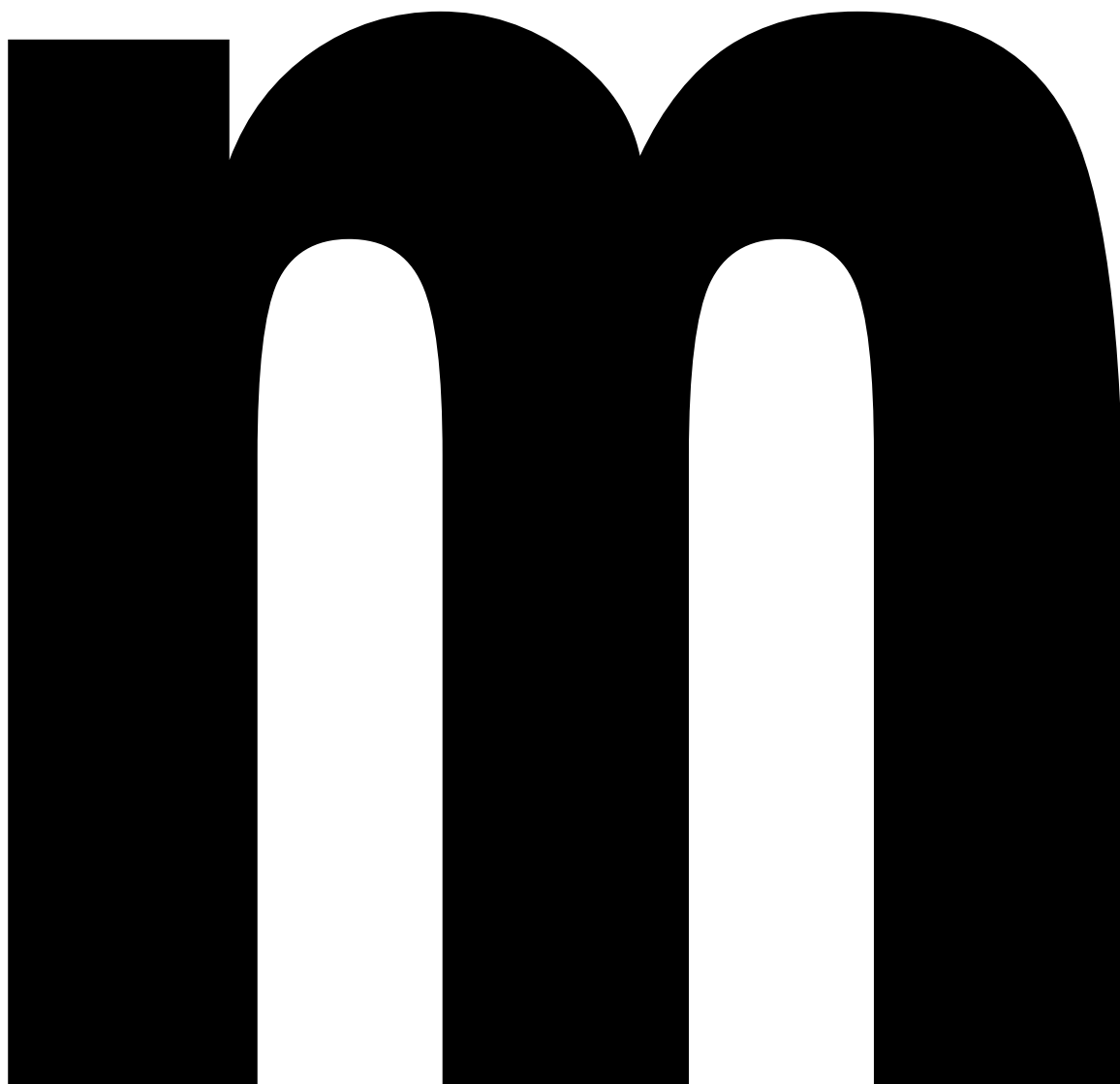






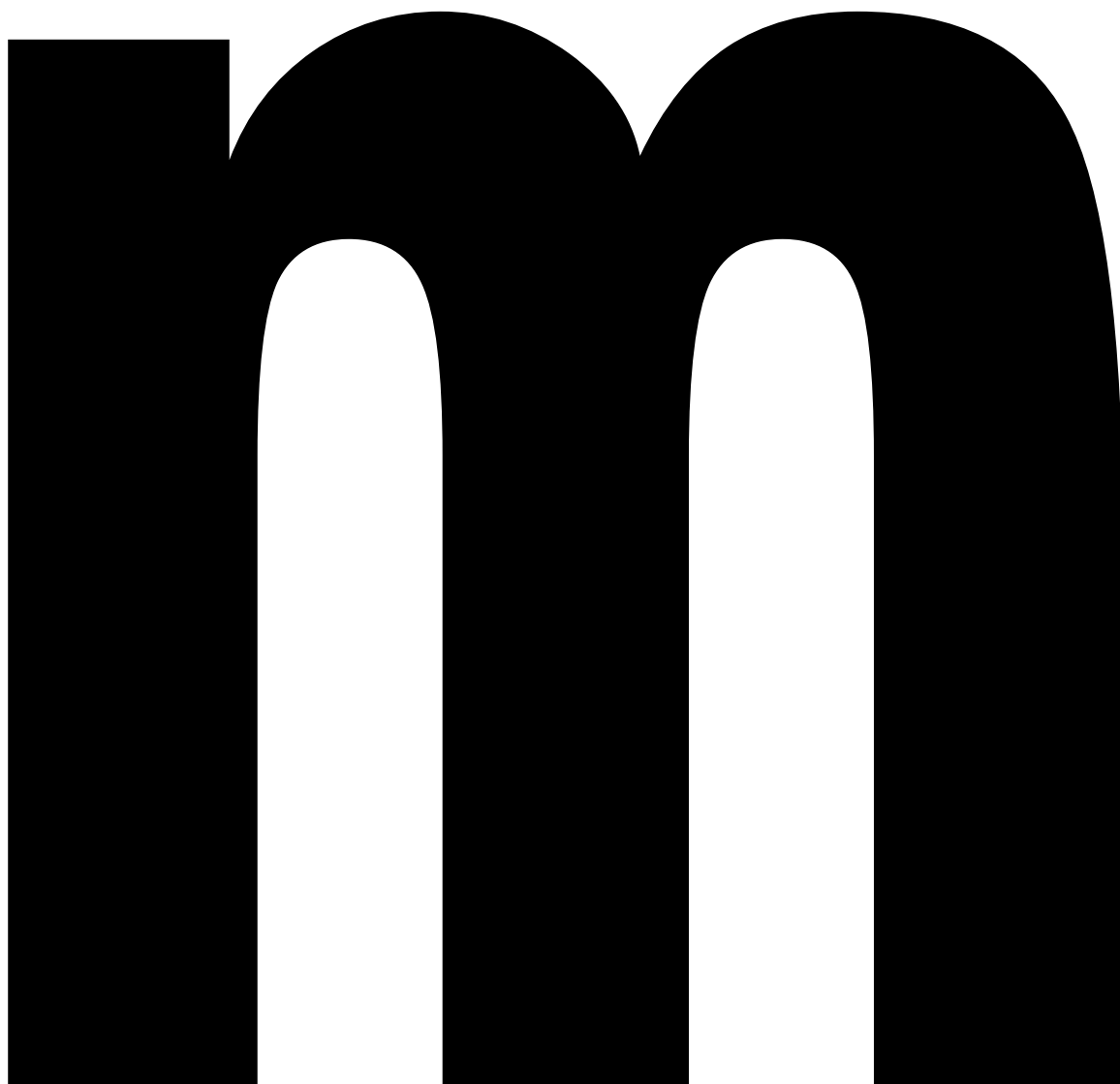




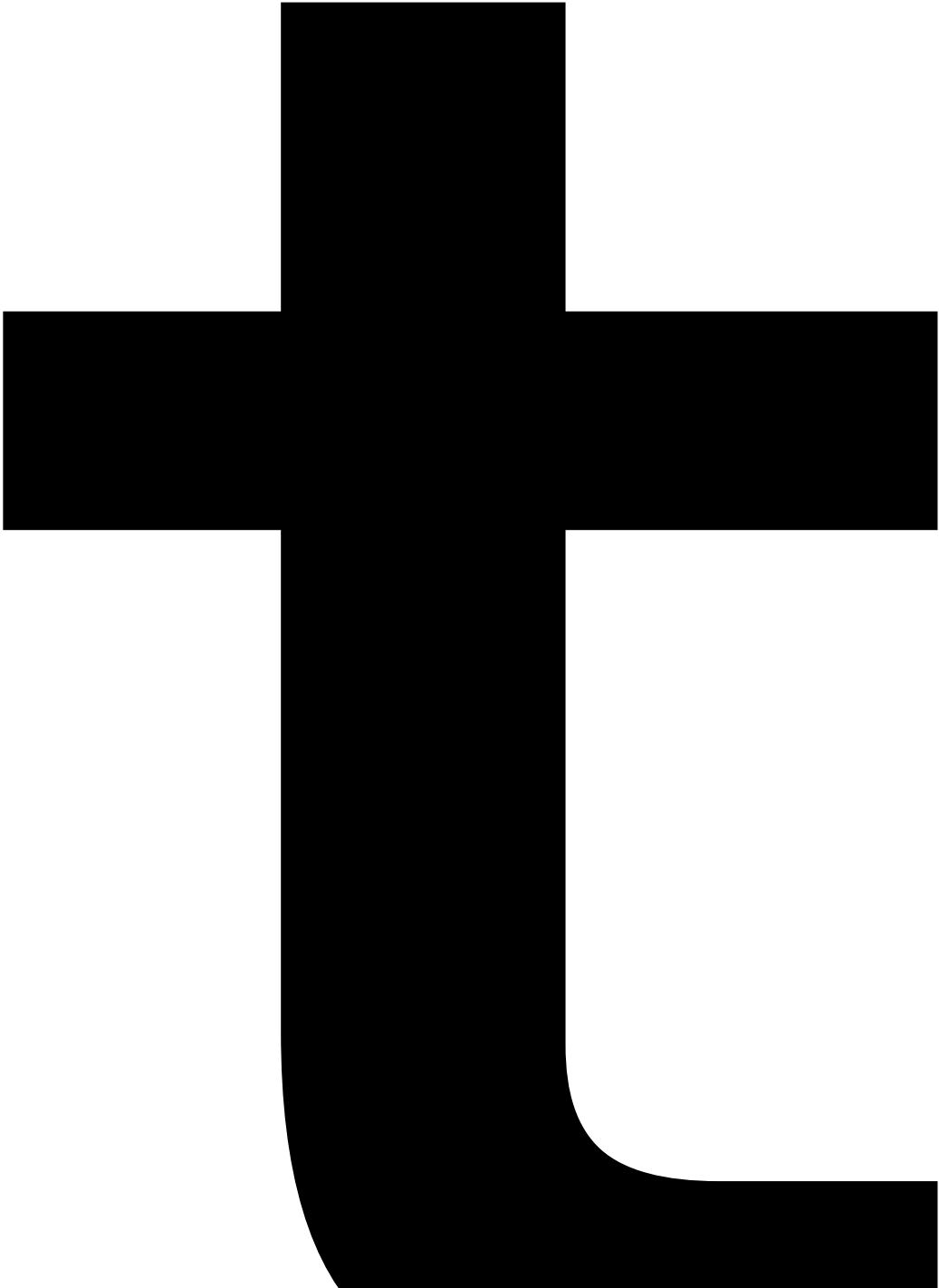














**e**



**M**



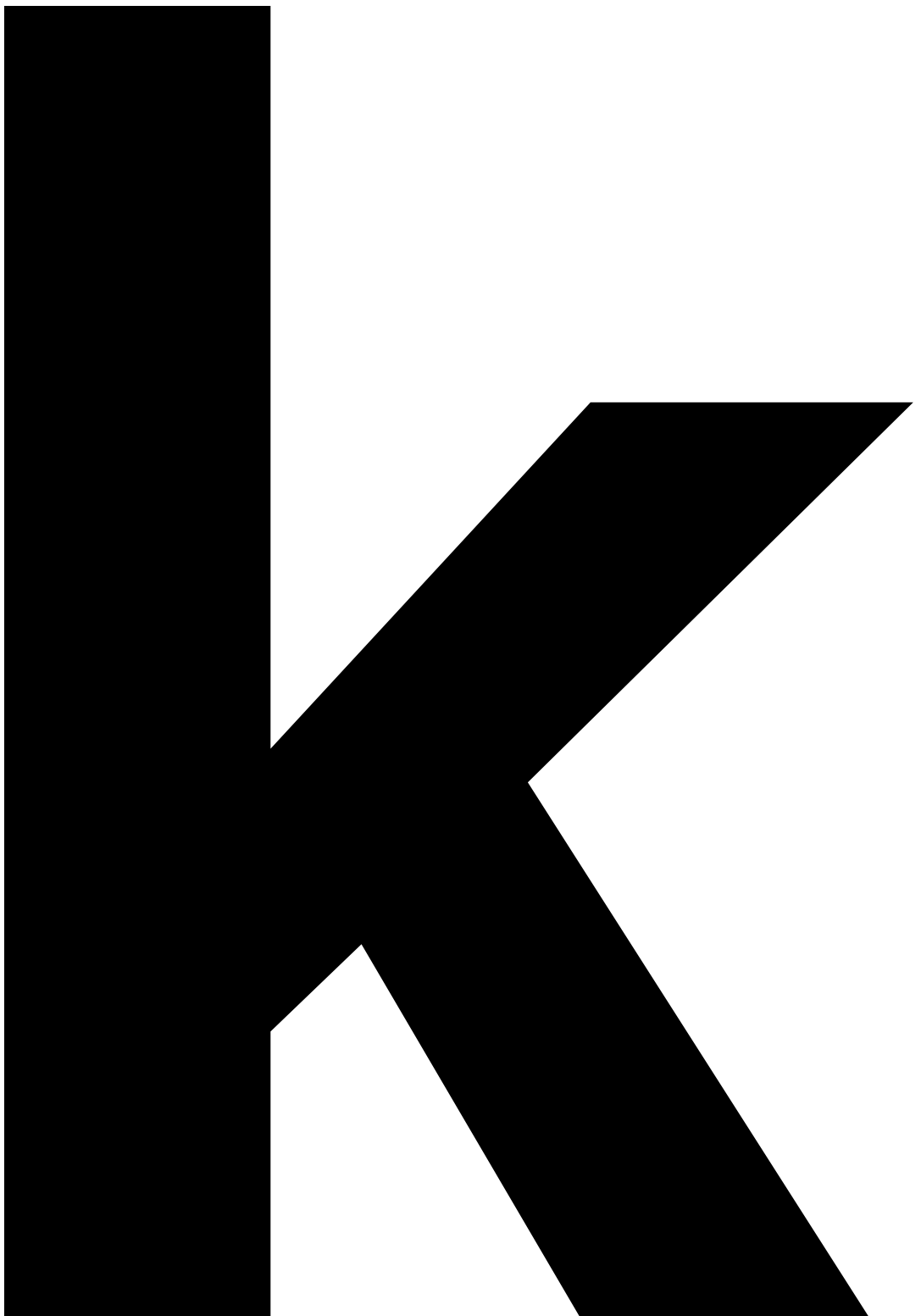


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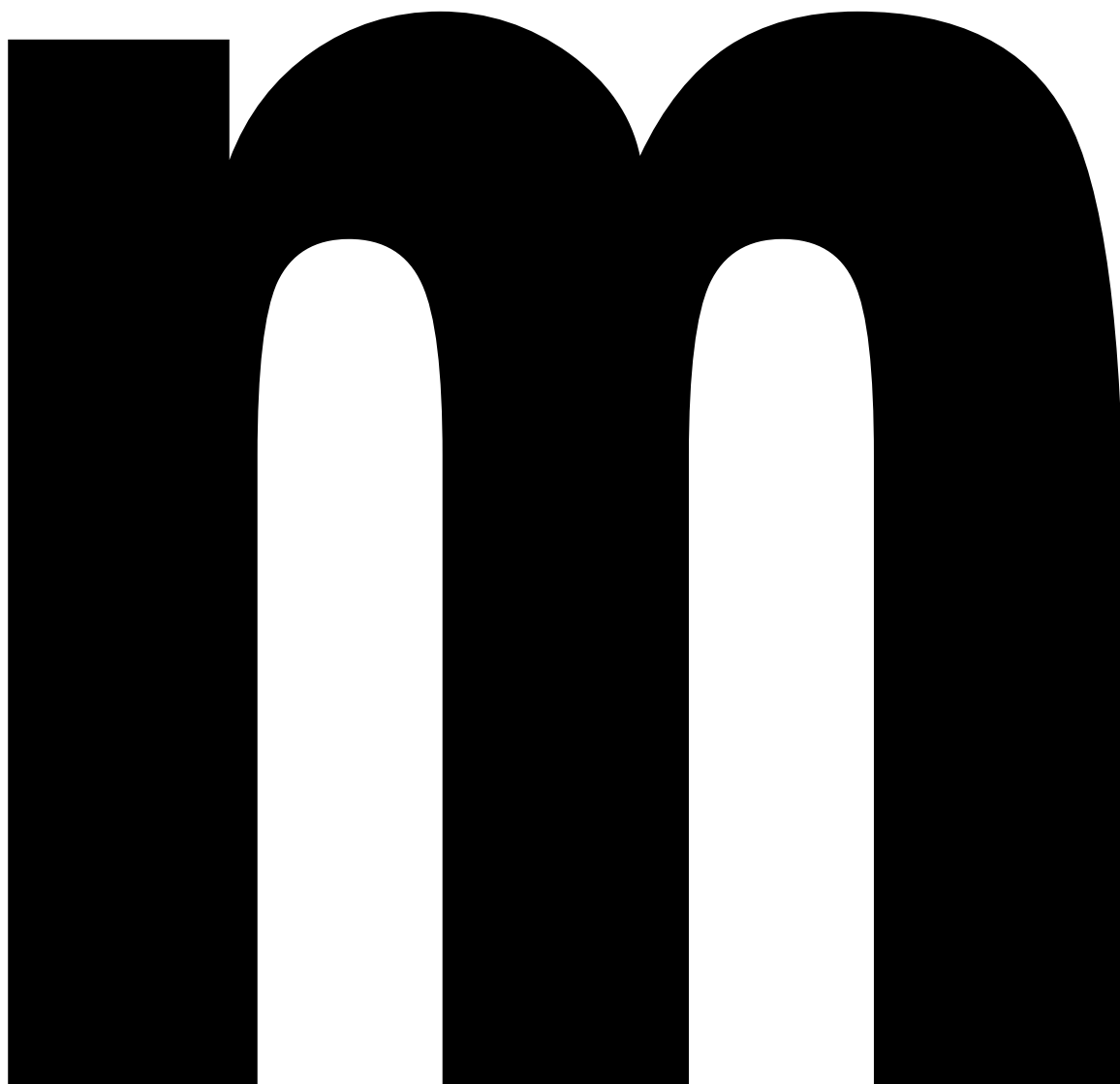














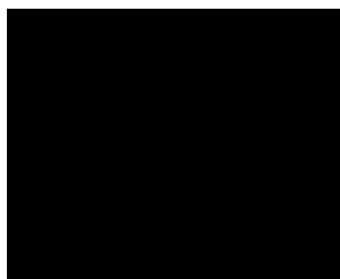


**5**



**J**



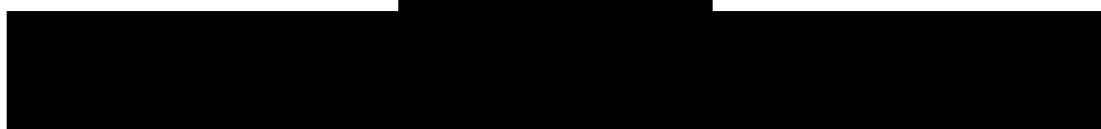
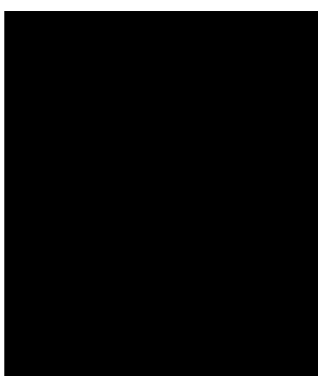




Q



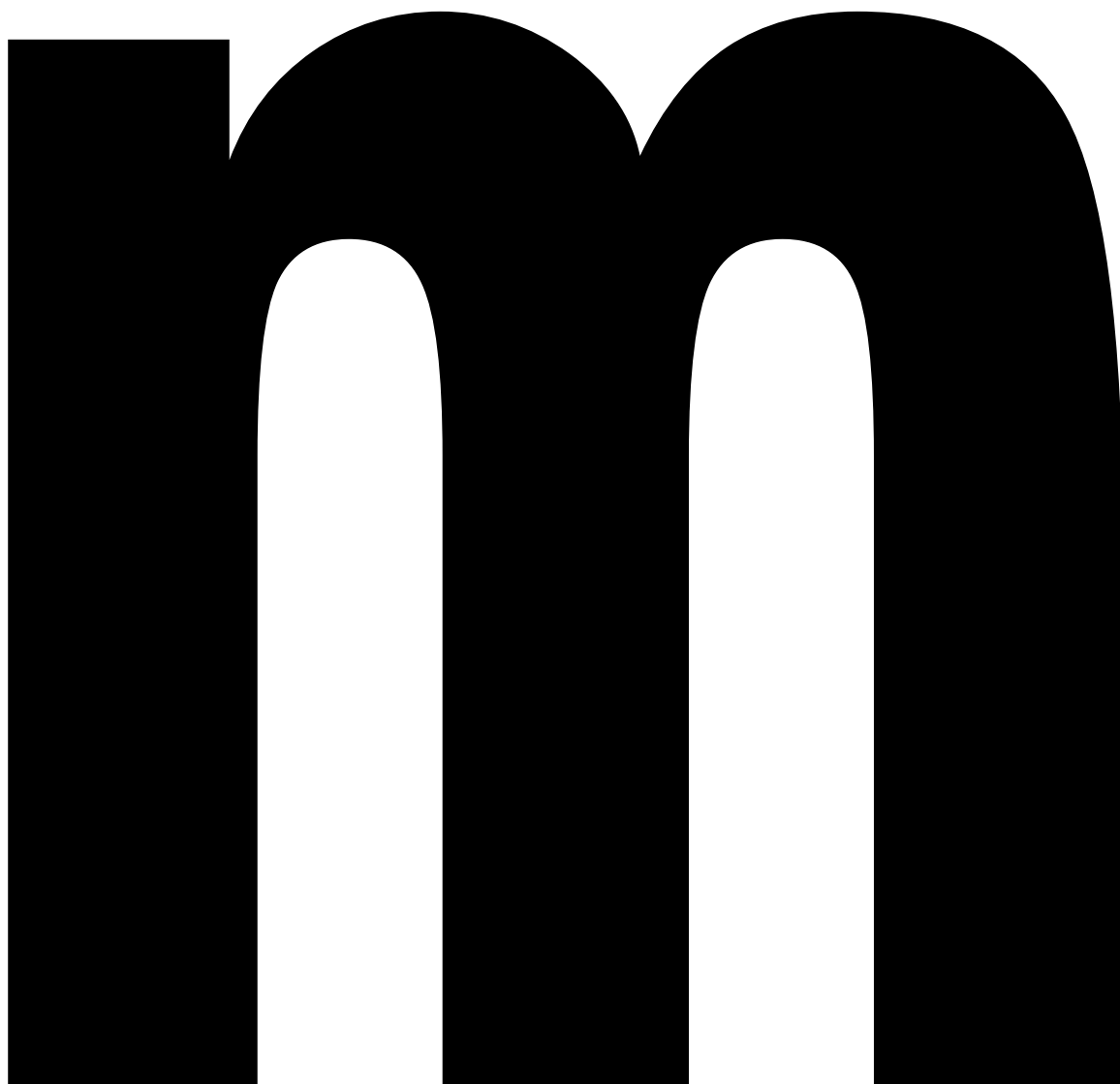






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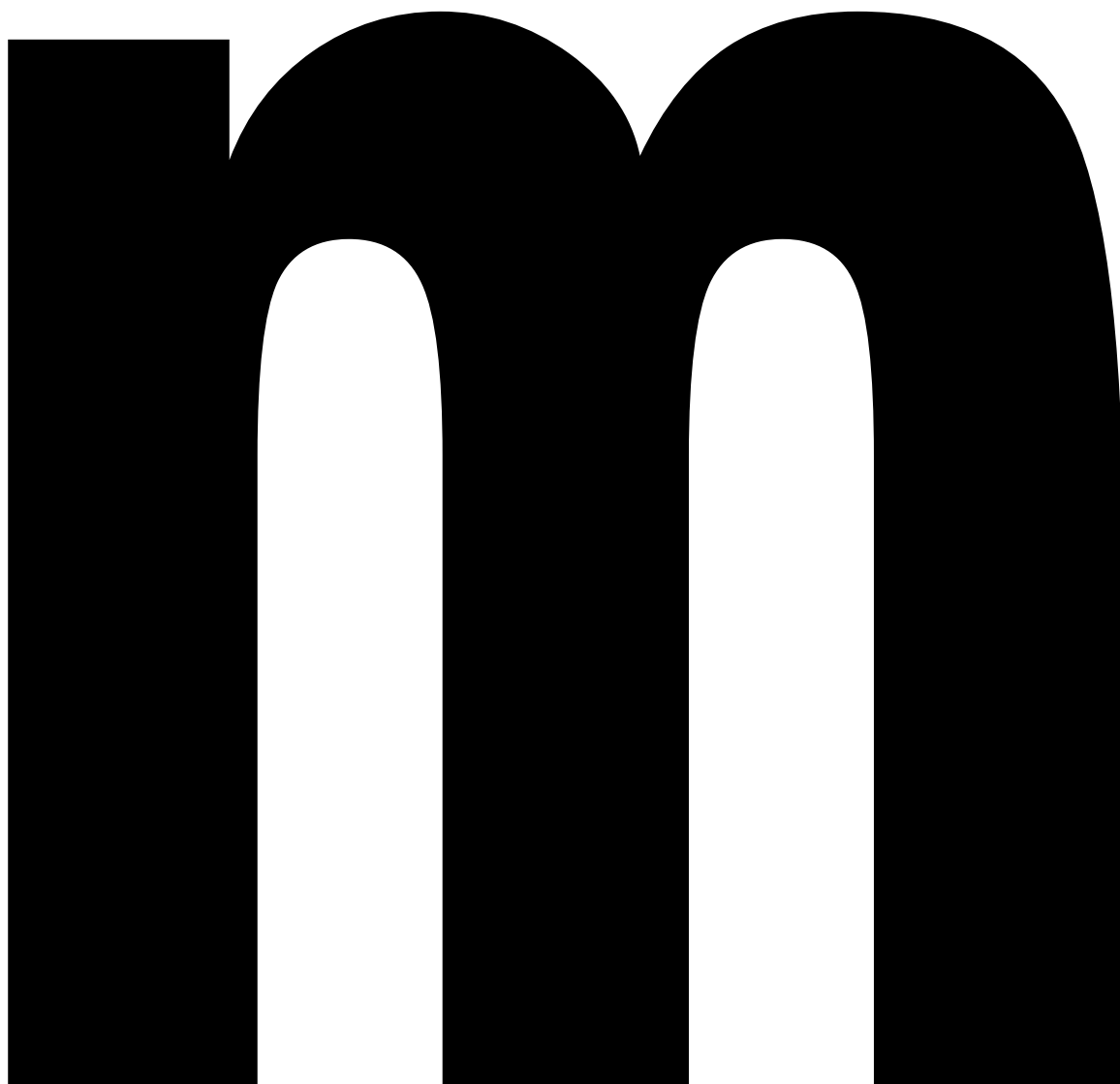
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**u**







**e**







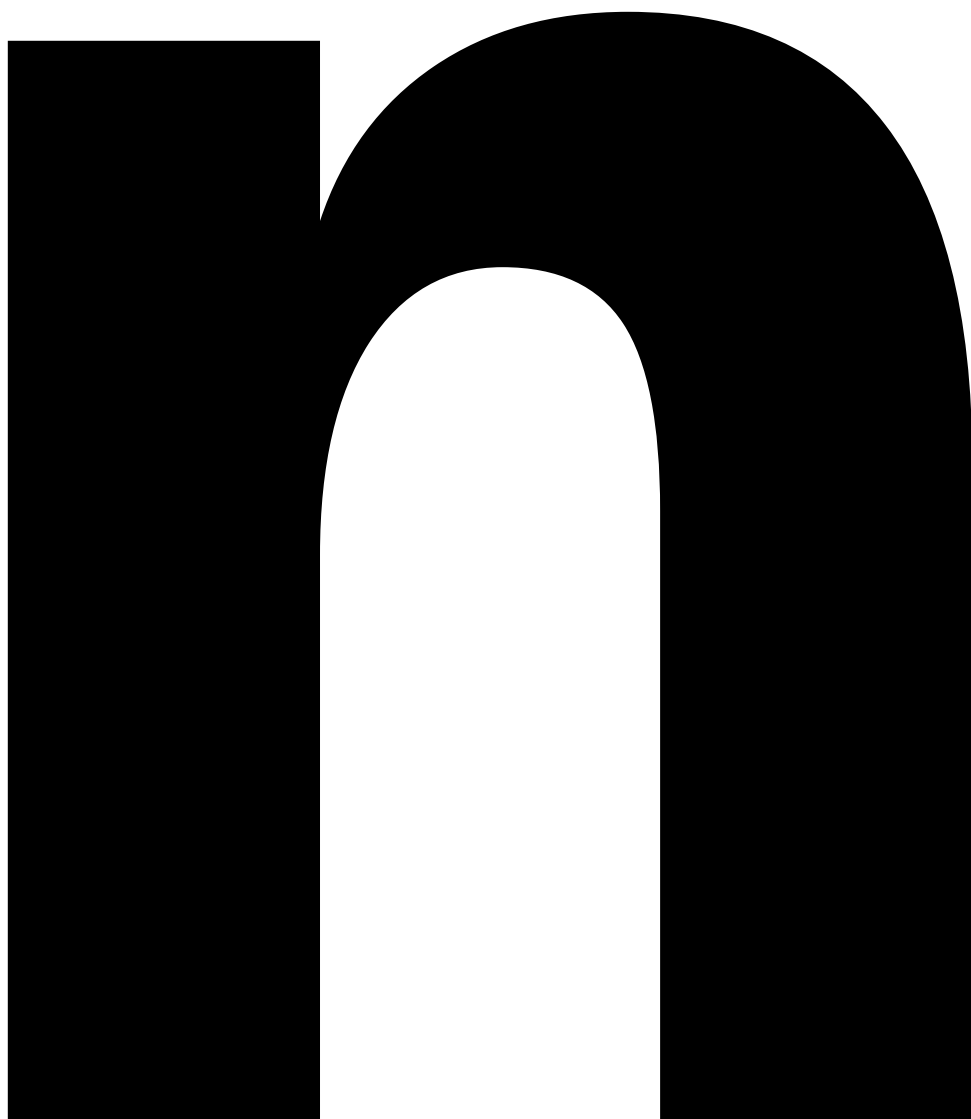


S

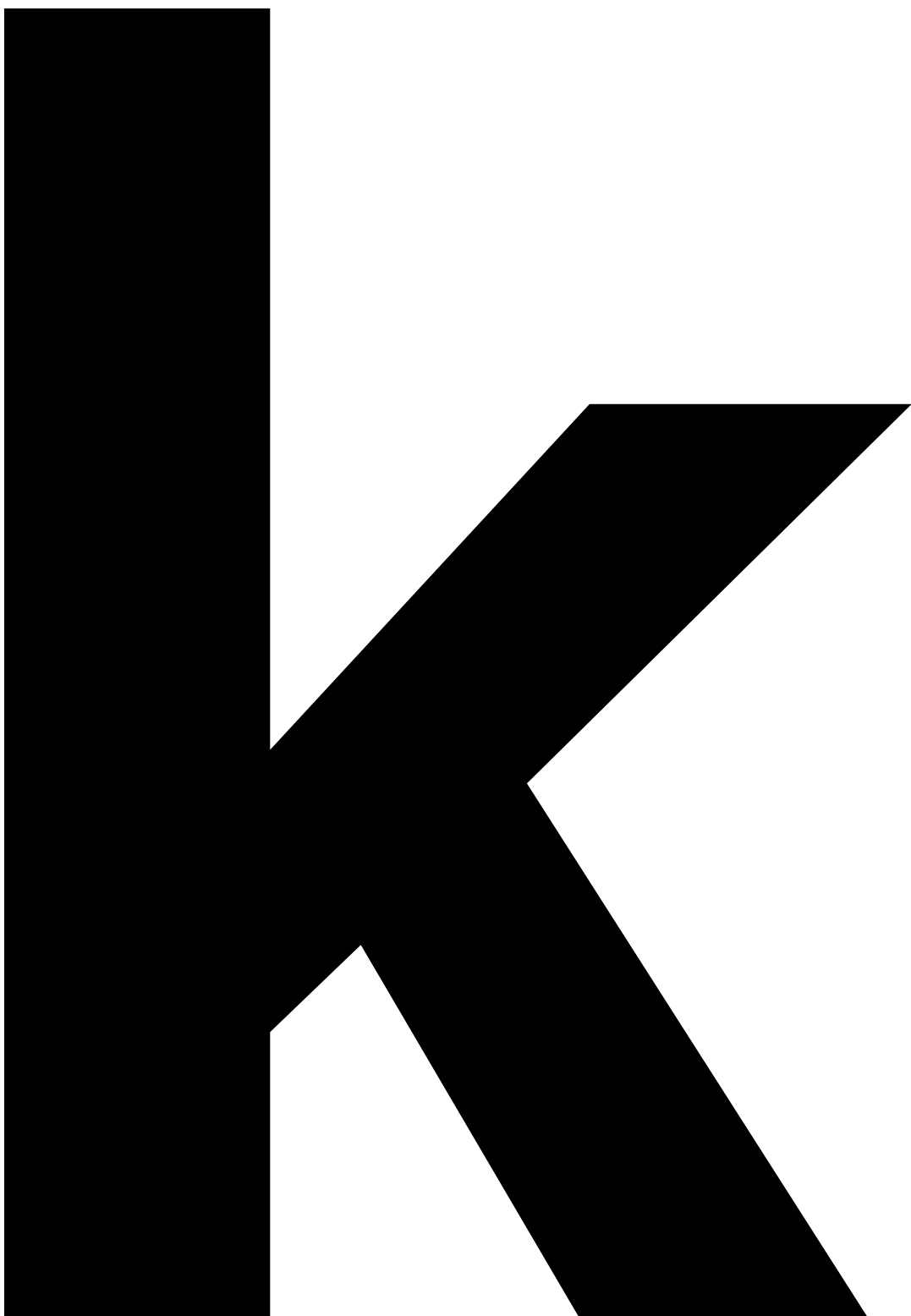


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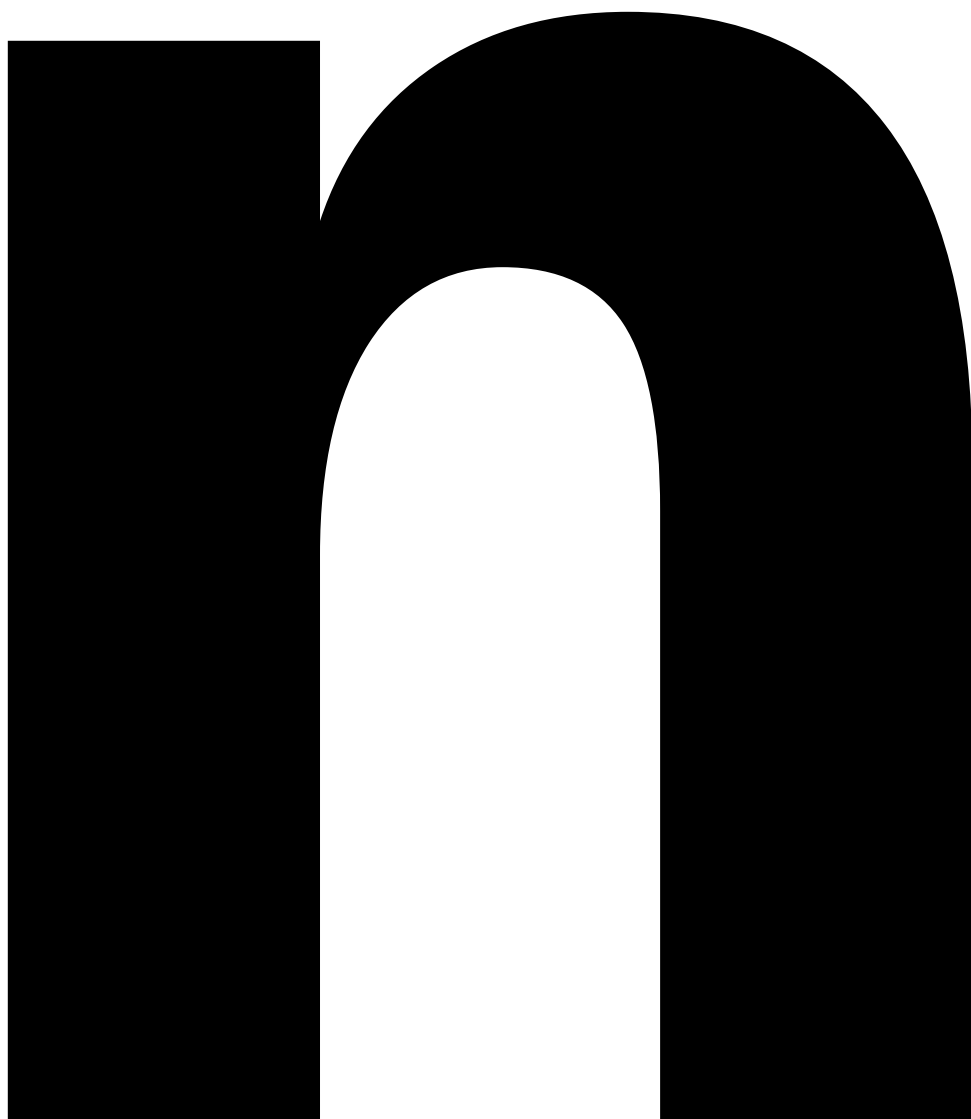


**S**

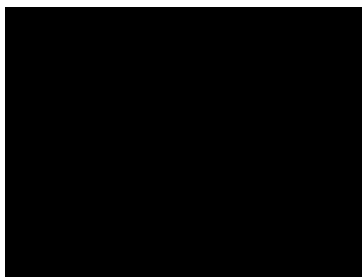


**u**















**R**







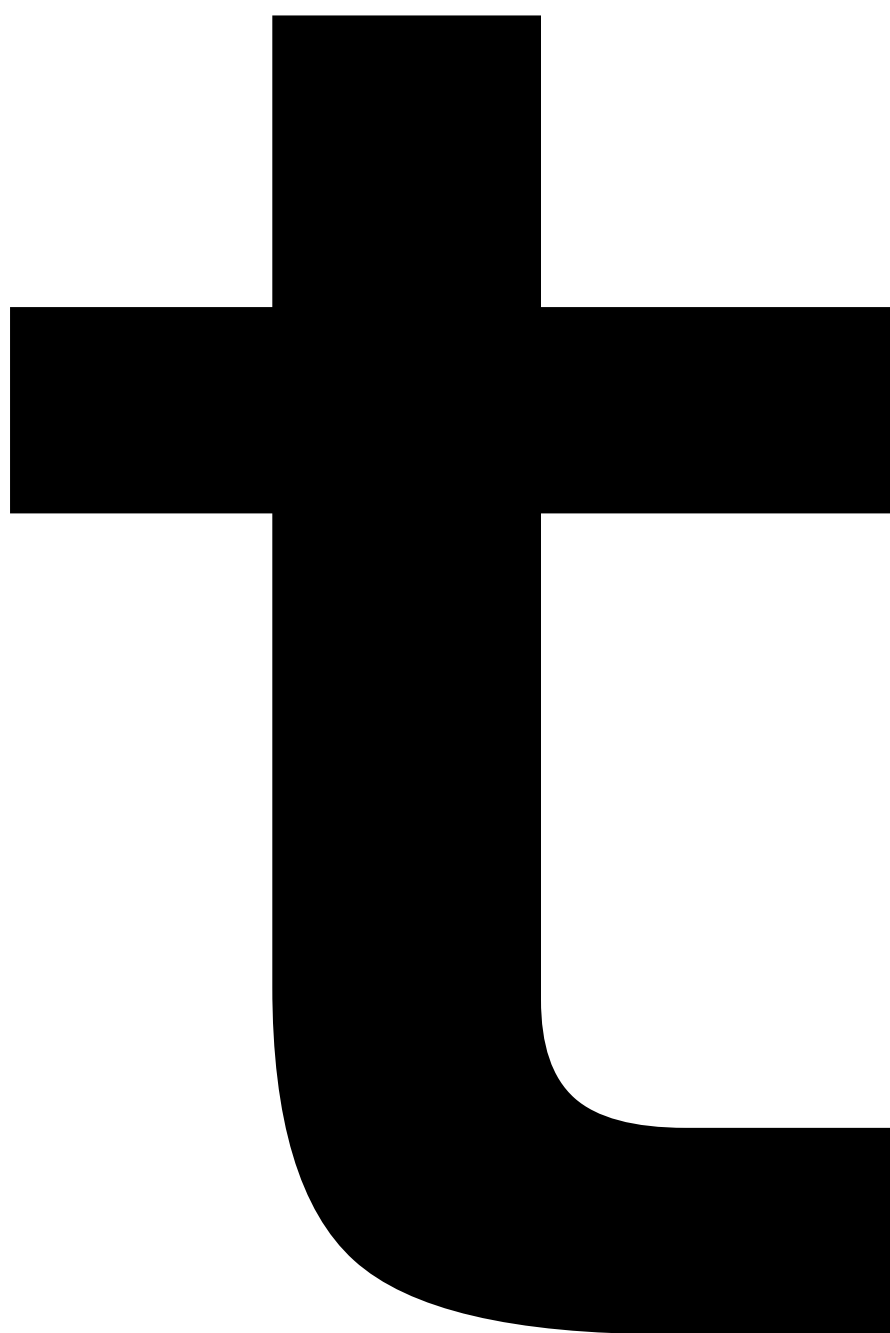
**C**





**h**











**Q**









**o**



**5a**



**S**









**r**



**Q**



**e**





**10**



**n**







**S**





**o**



**e**



**r**



**M**





**e**



**S**



**S**



**u**





**n**



**Q**



**V**



**e**





**r**



**S**



**C**



**h**





**w**



**e**







**Q**









**5**



**10**



**e**





**r**



**P**







**5**





**u**



**S**



**Q**



**u**









**e**



**m**



**G**





**r**



**u**



**n**



**o**



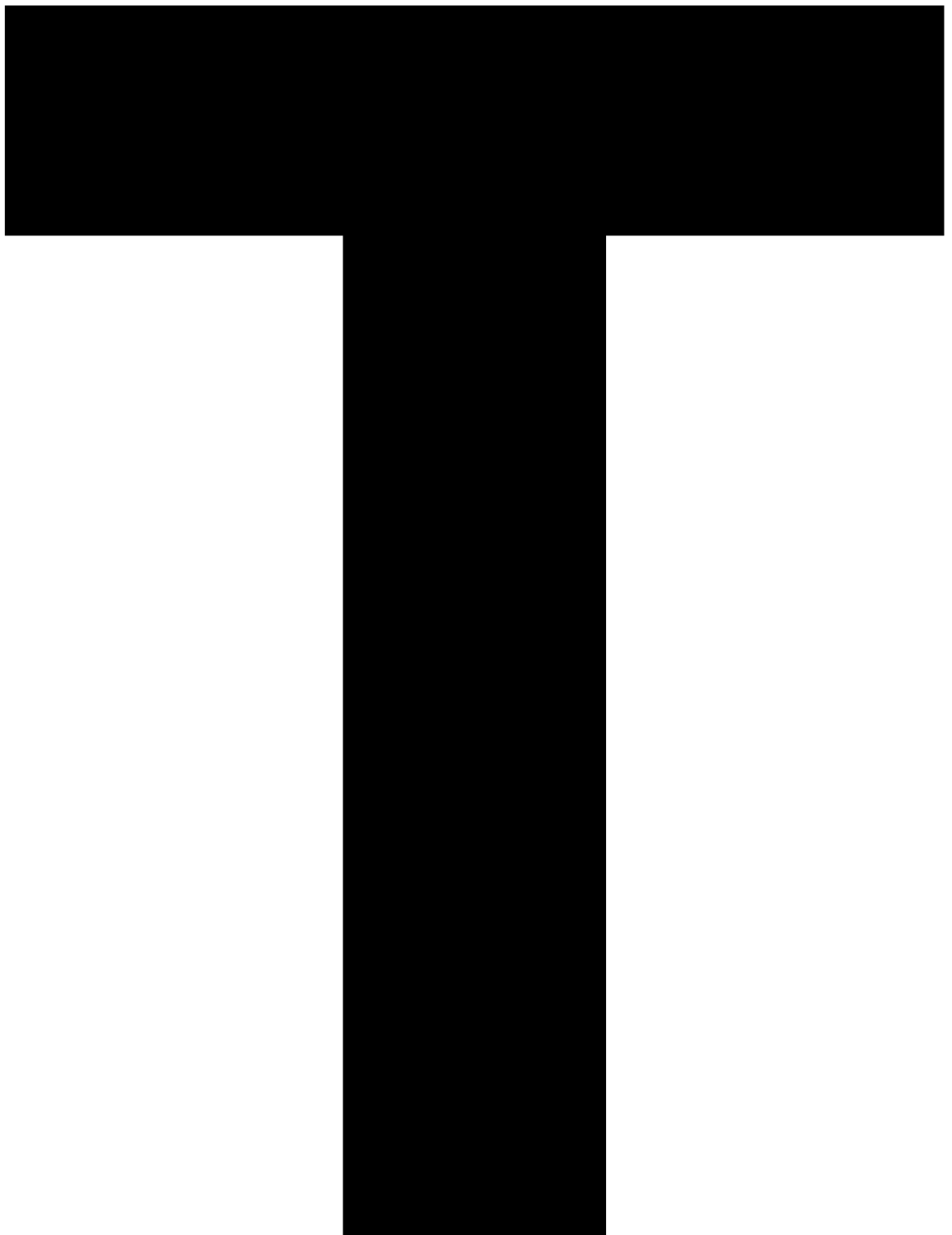




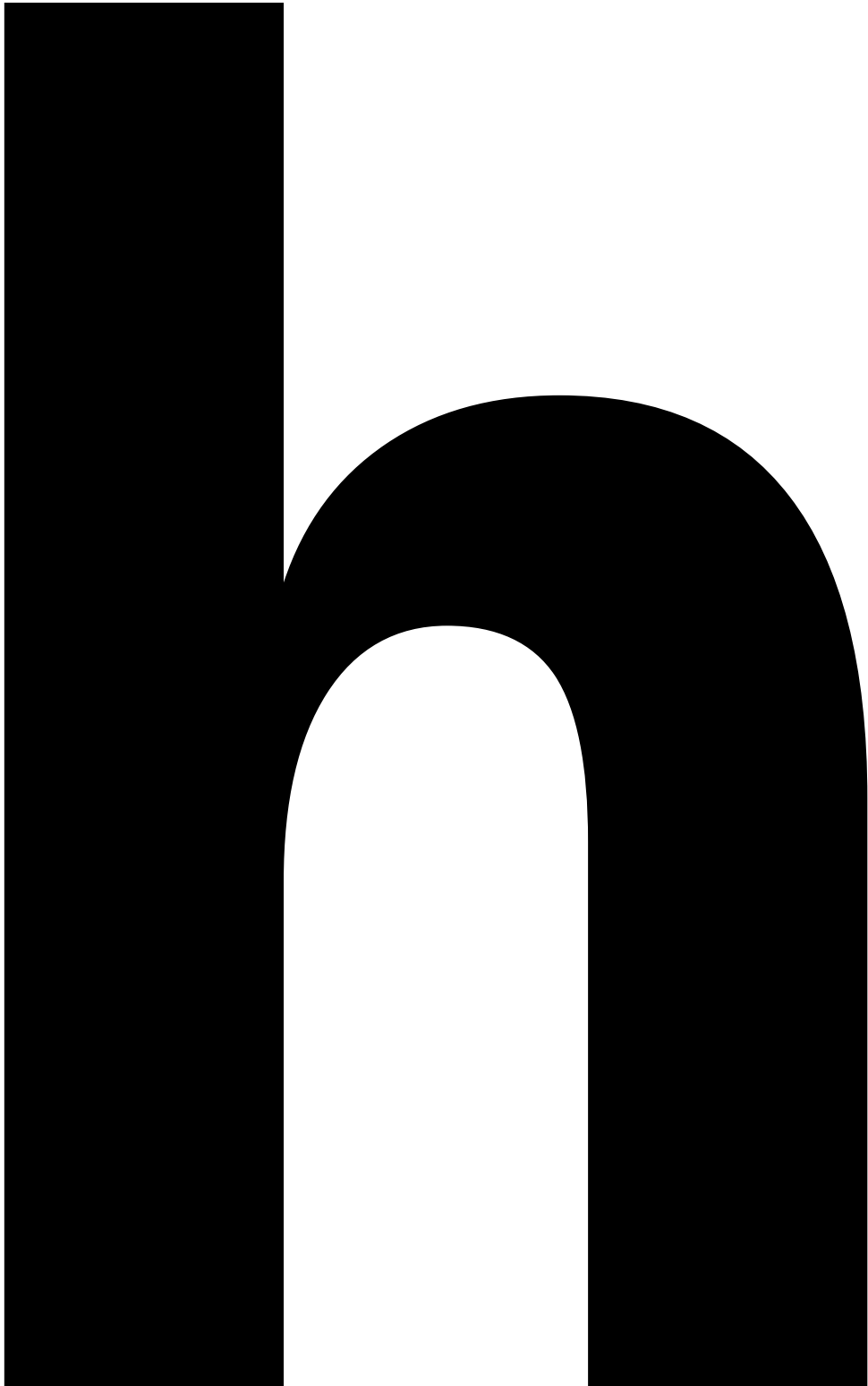
















**e**



**S**



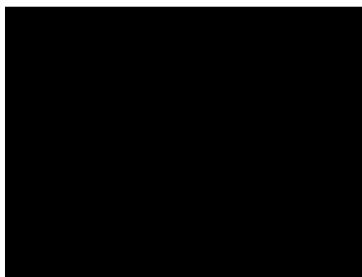
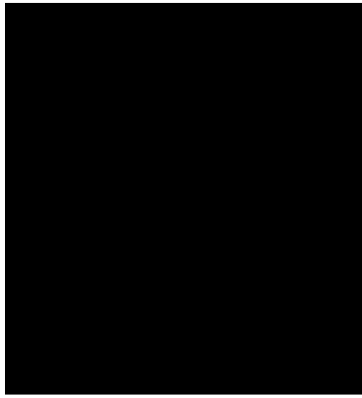
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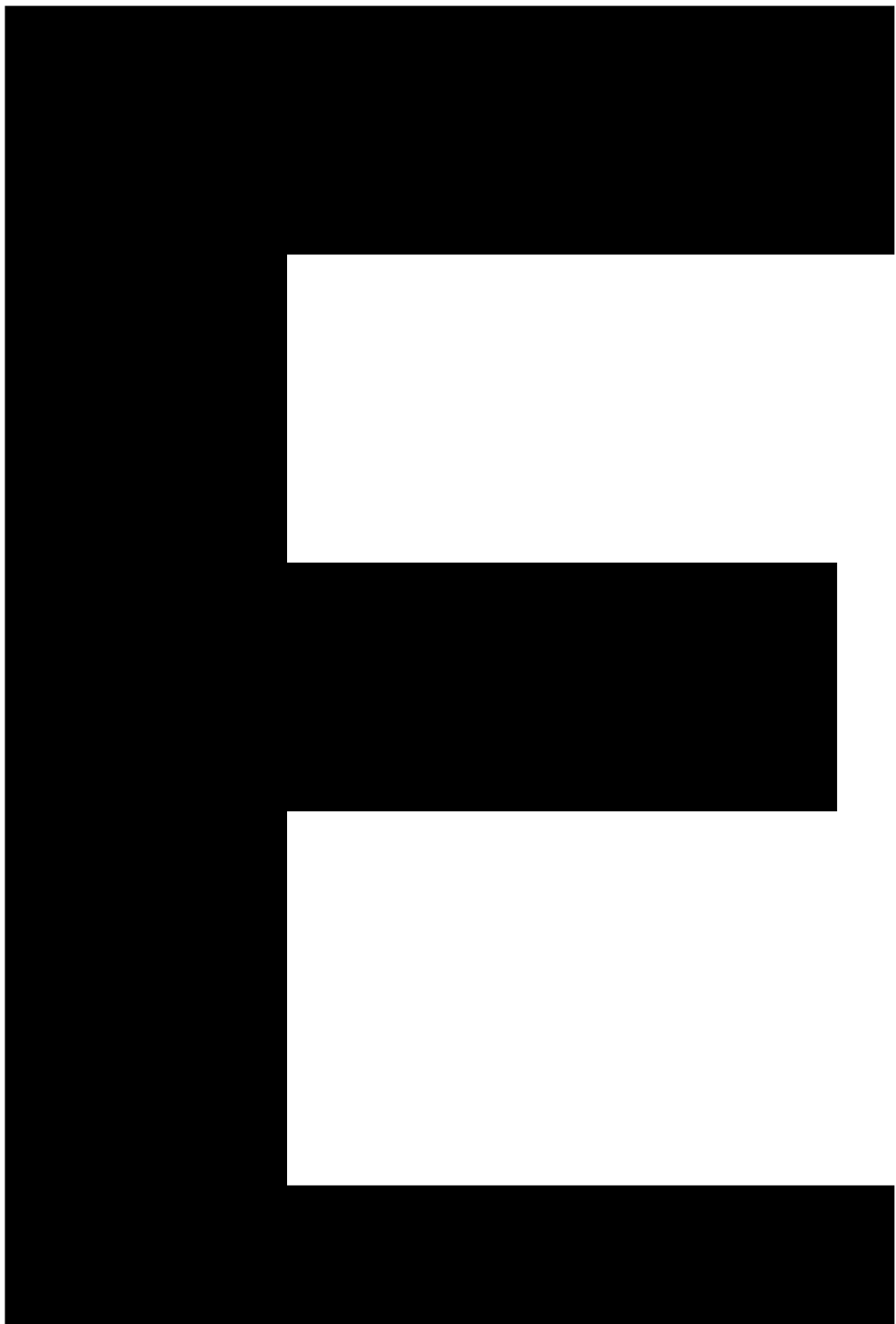
6













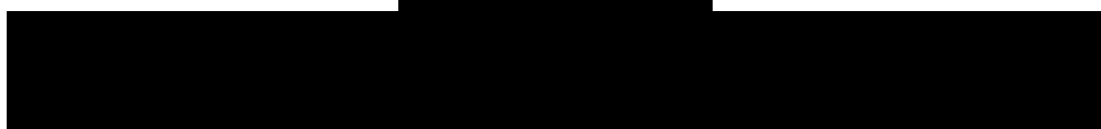
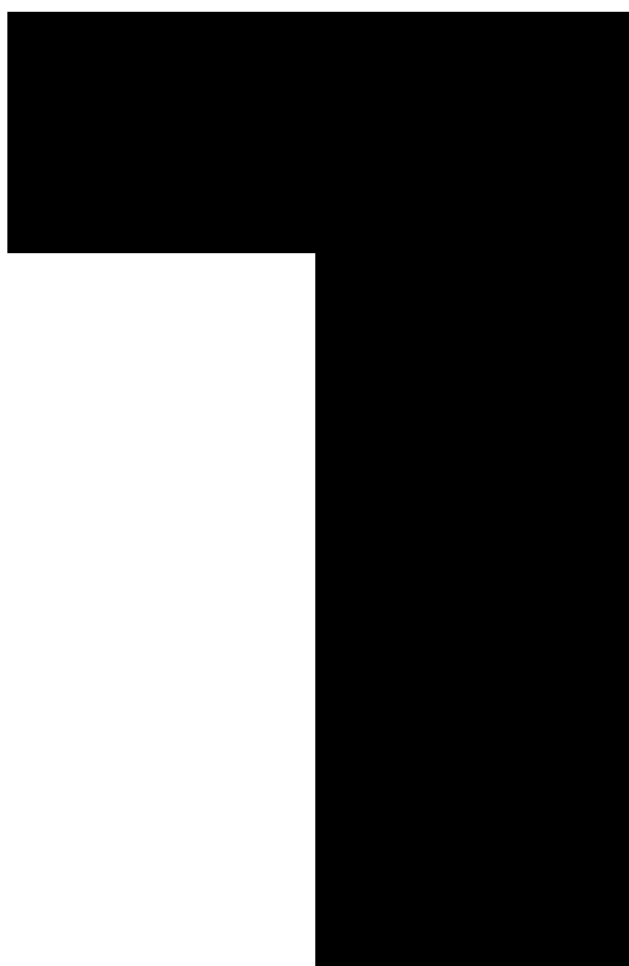
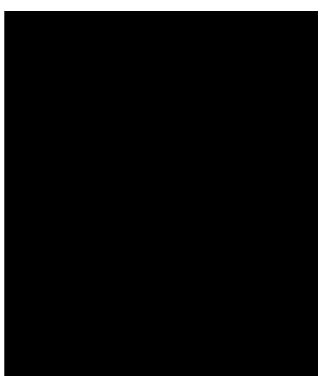
S



**Q**



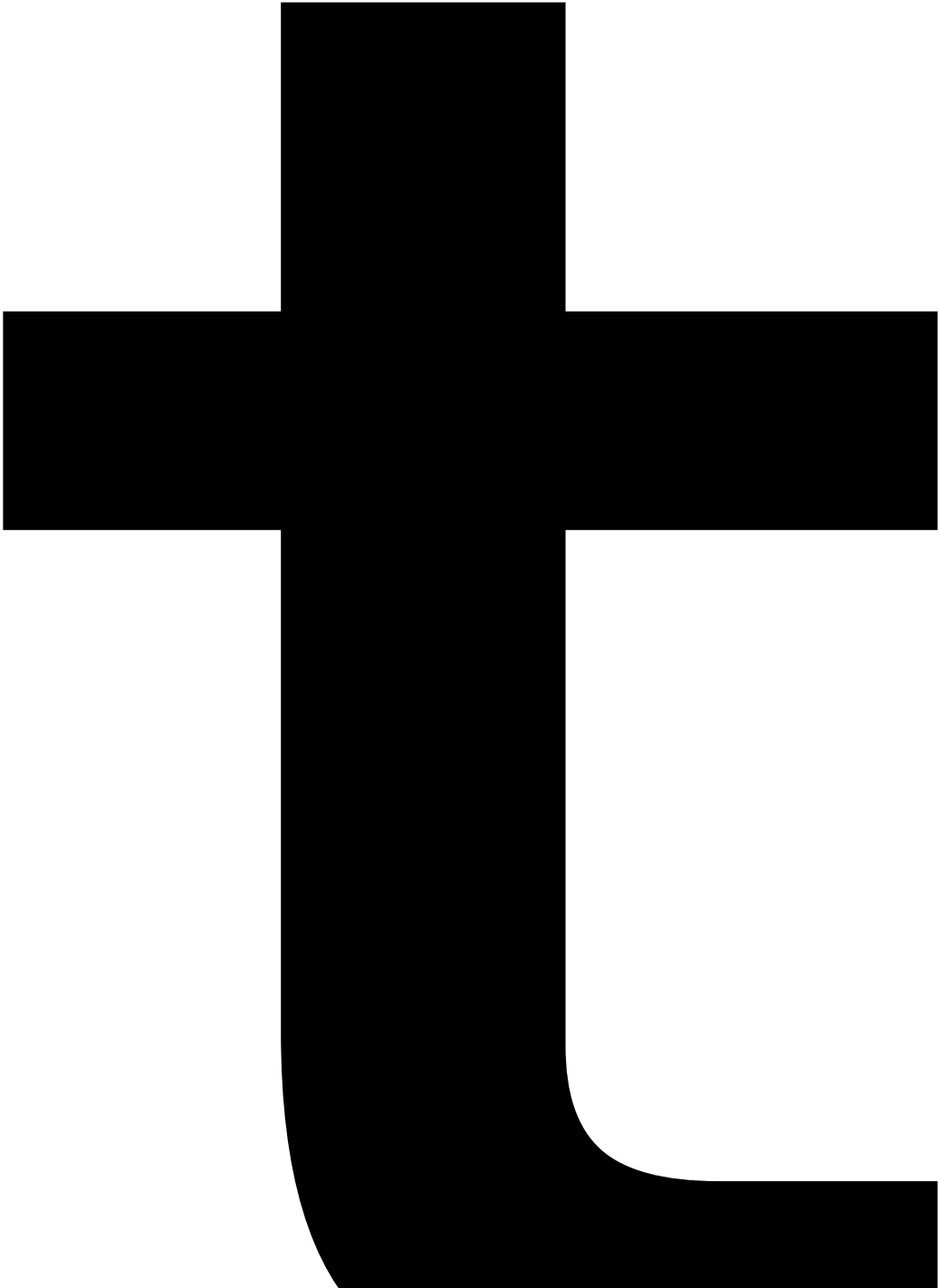




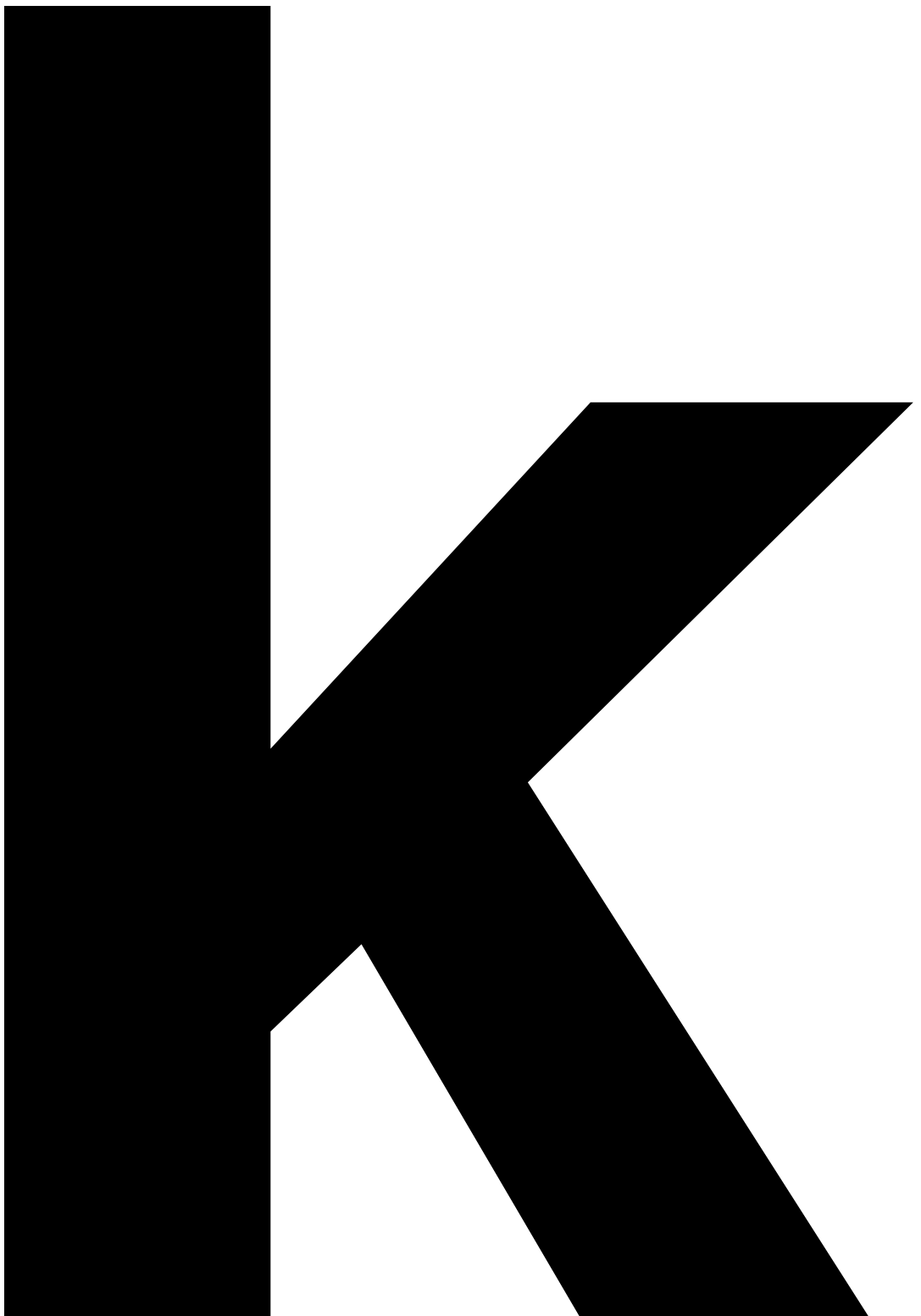


**bo**







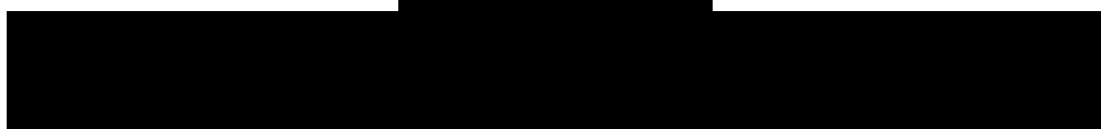
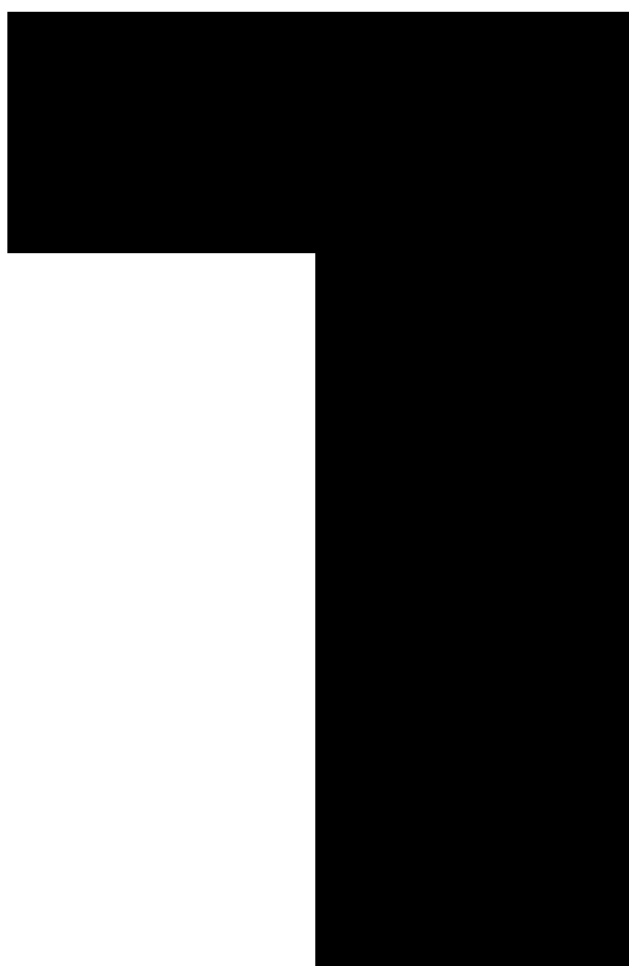
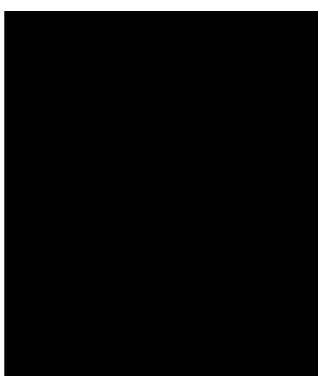




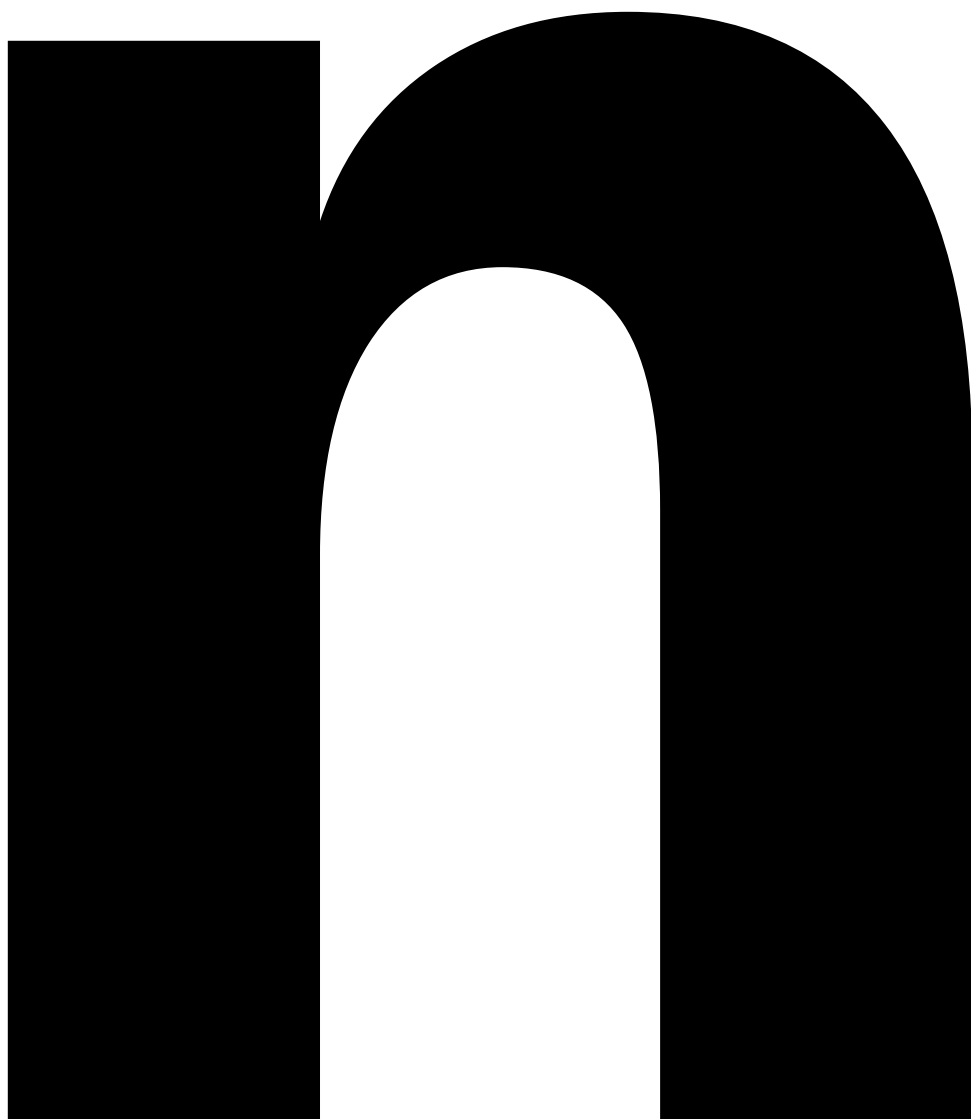


**e**







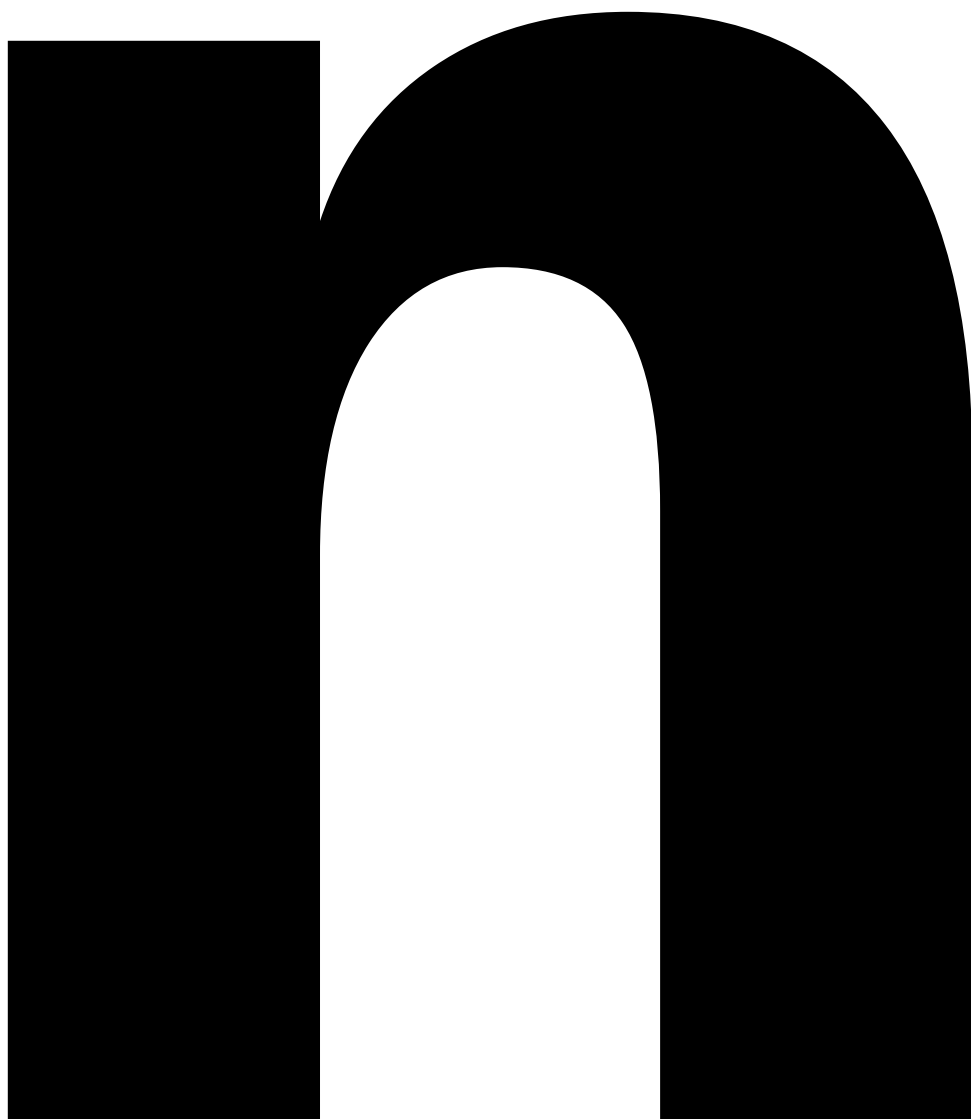




**e**









**G**







U



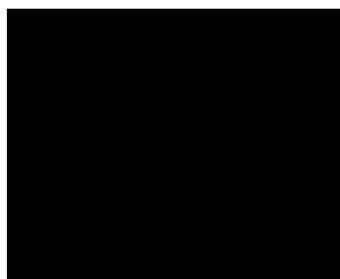


**u**



Q







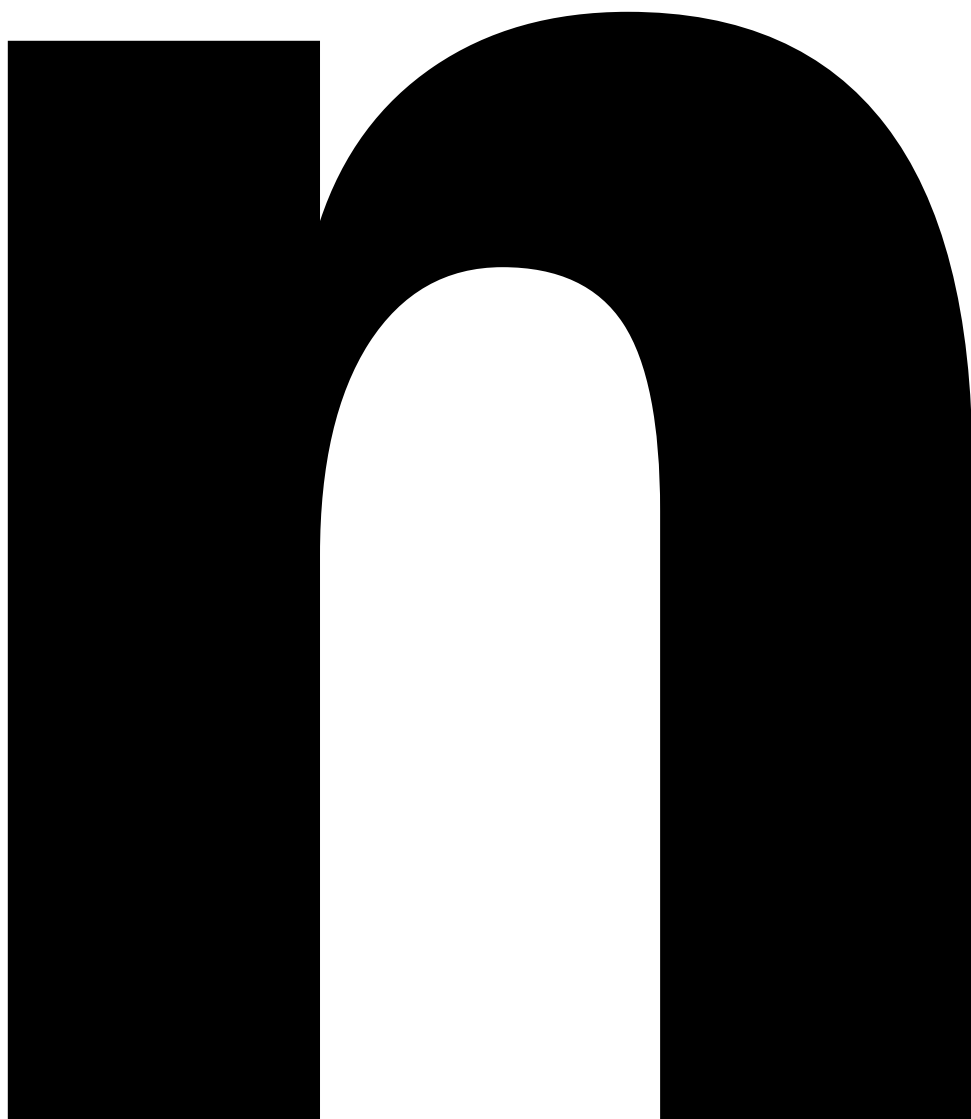
Q





**e**

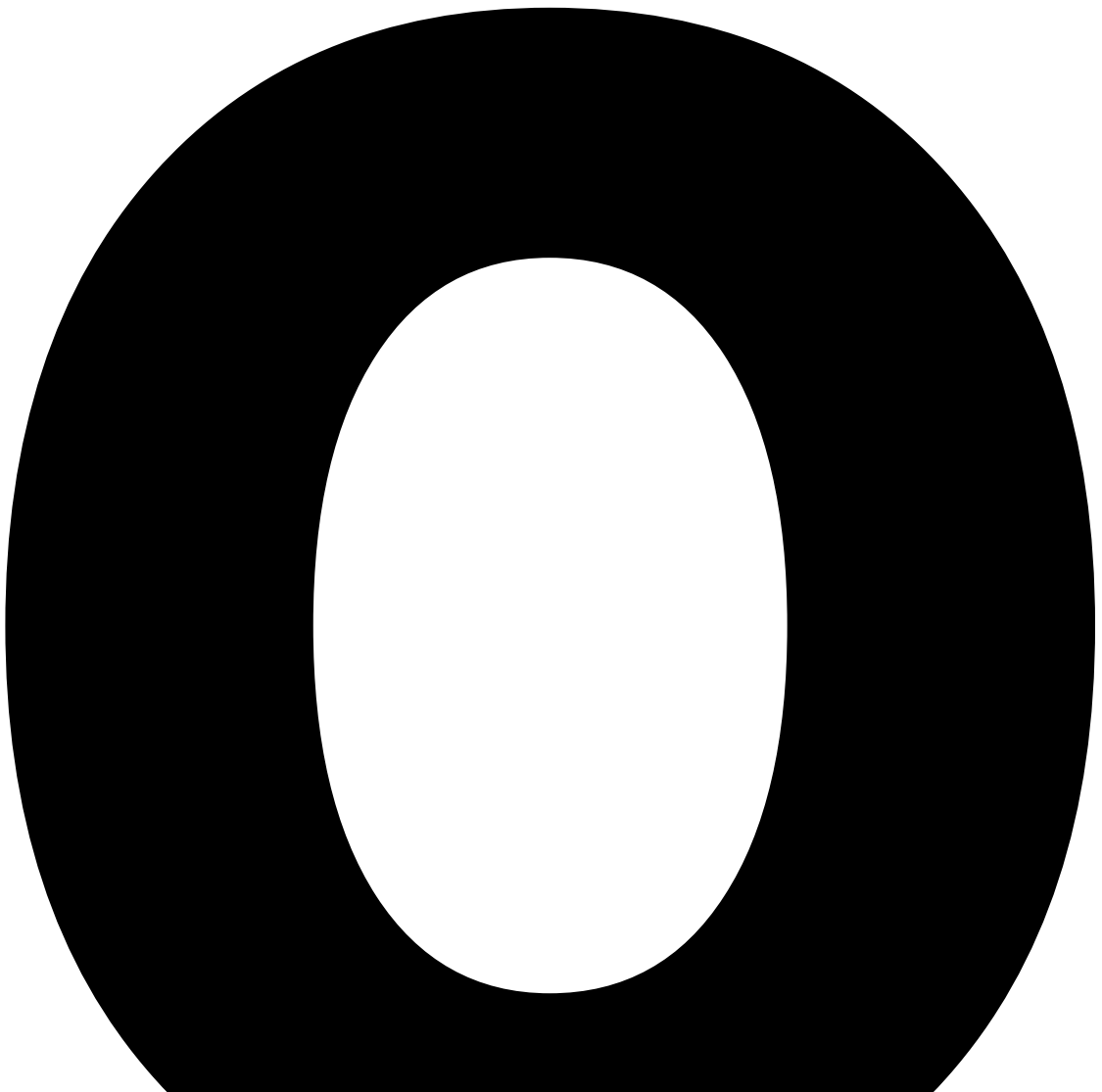






**M**









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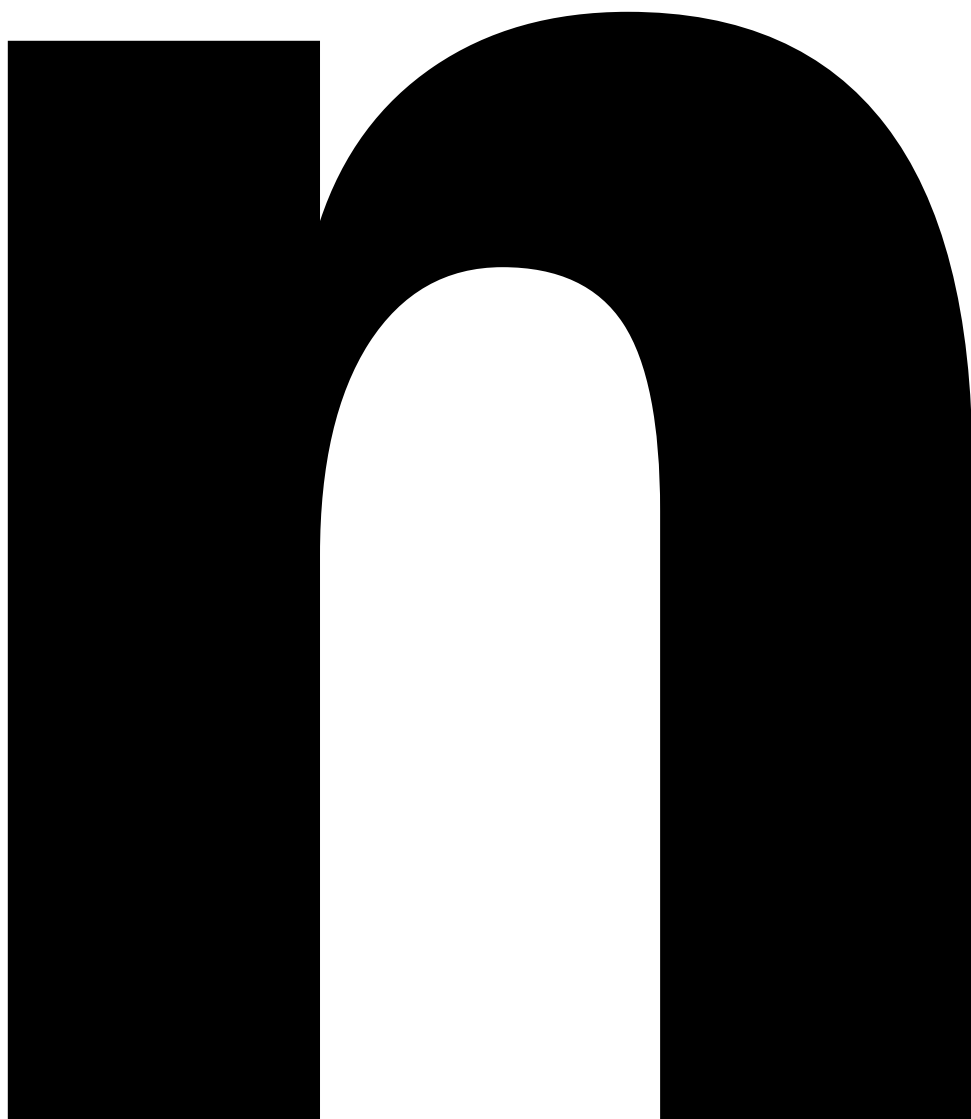
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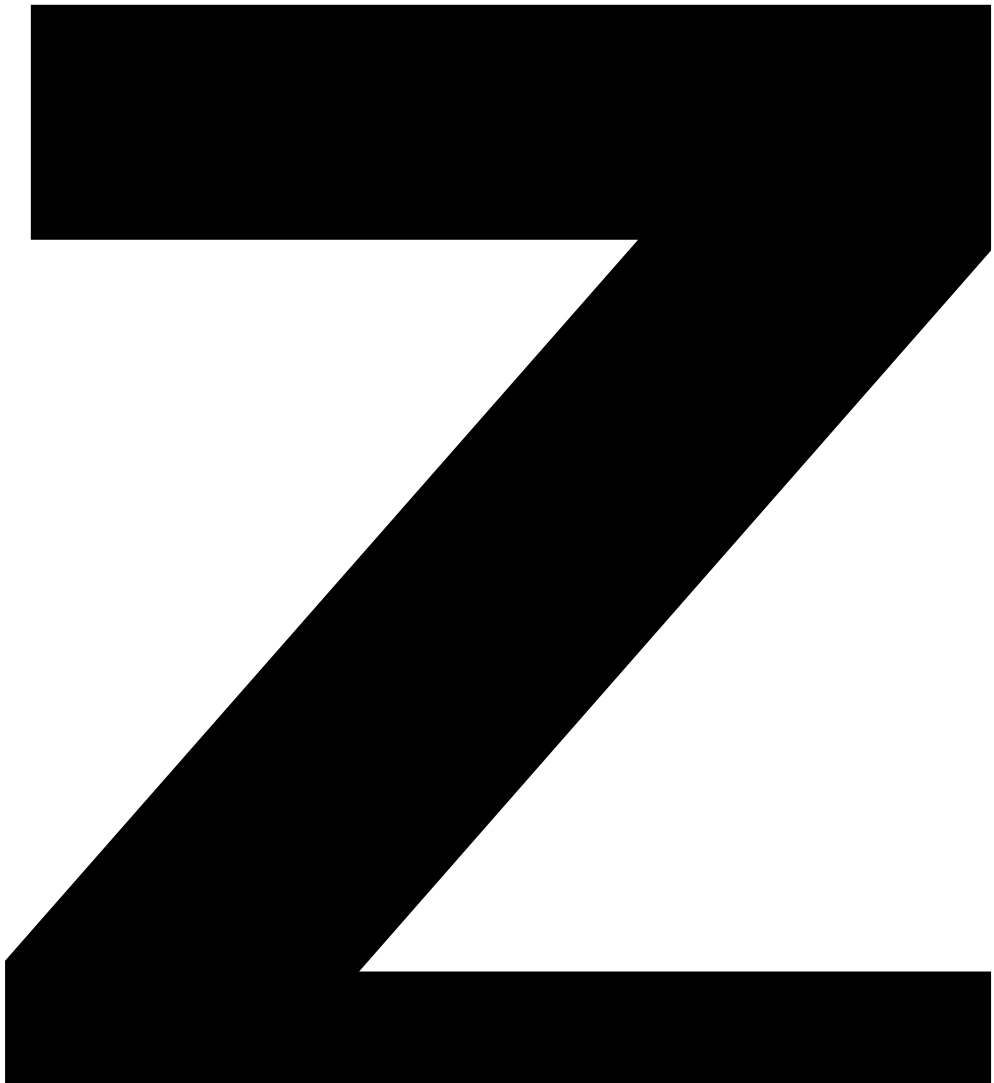


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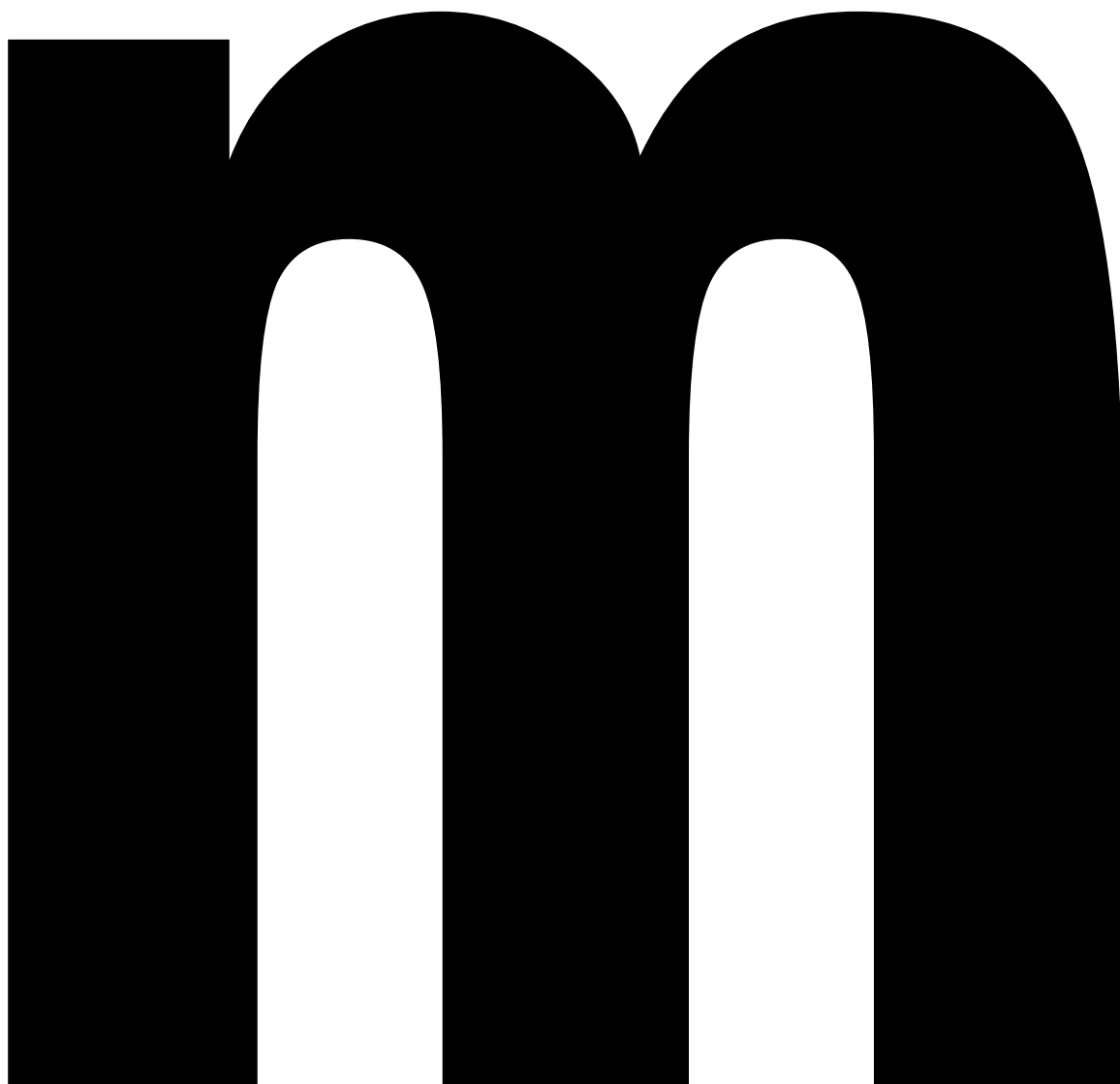




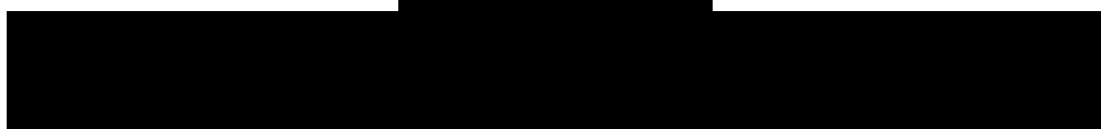
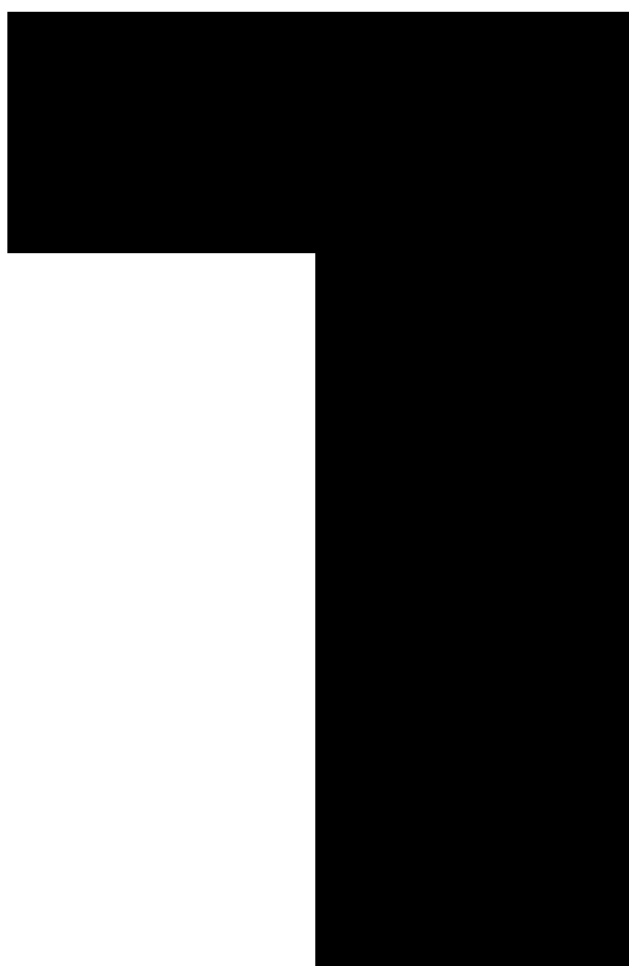
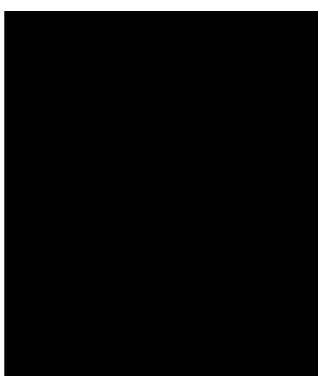
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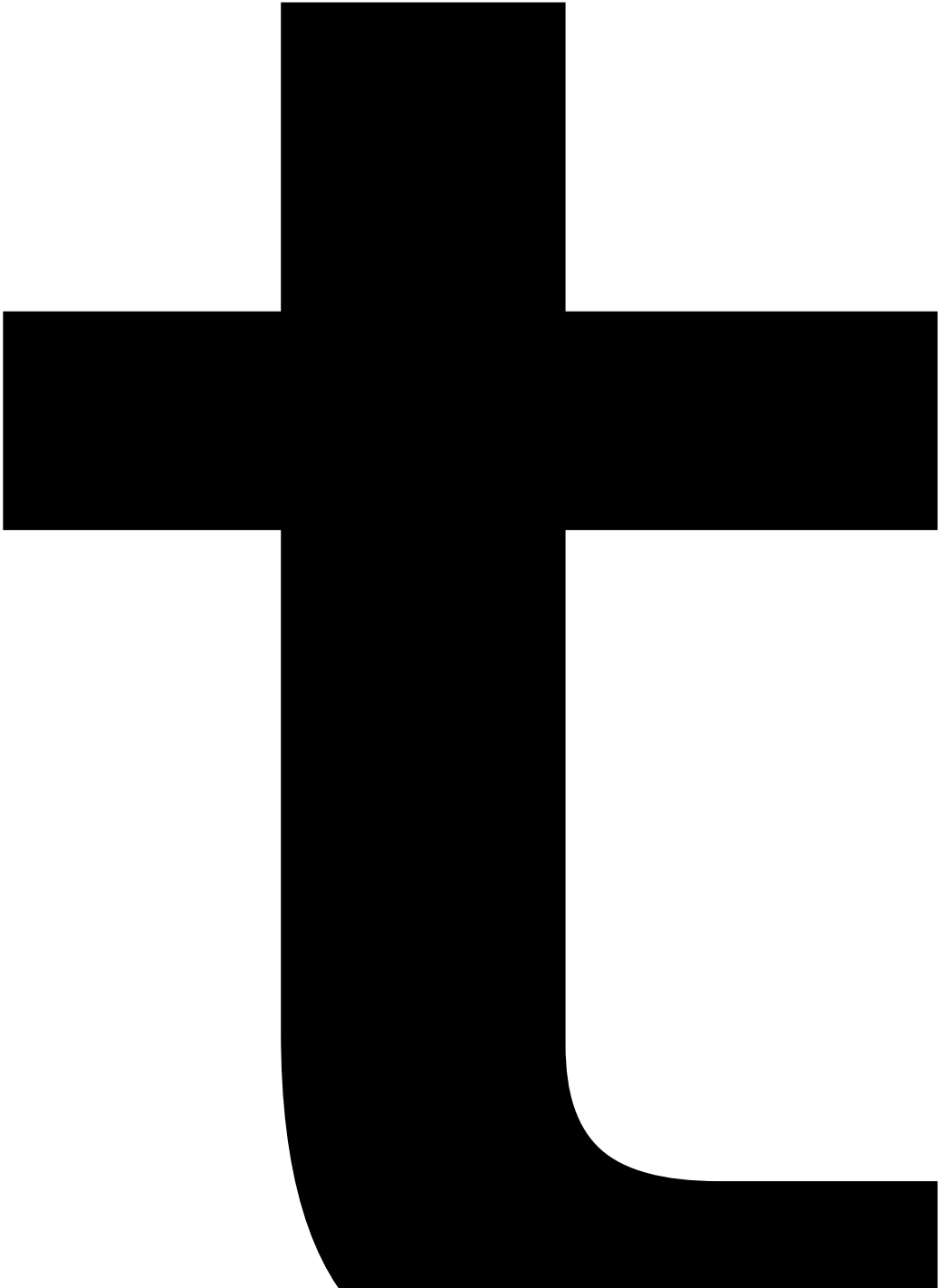
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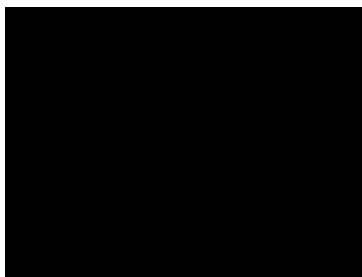


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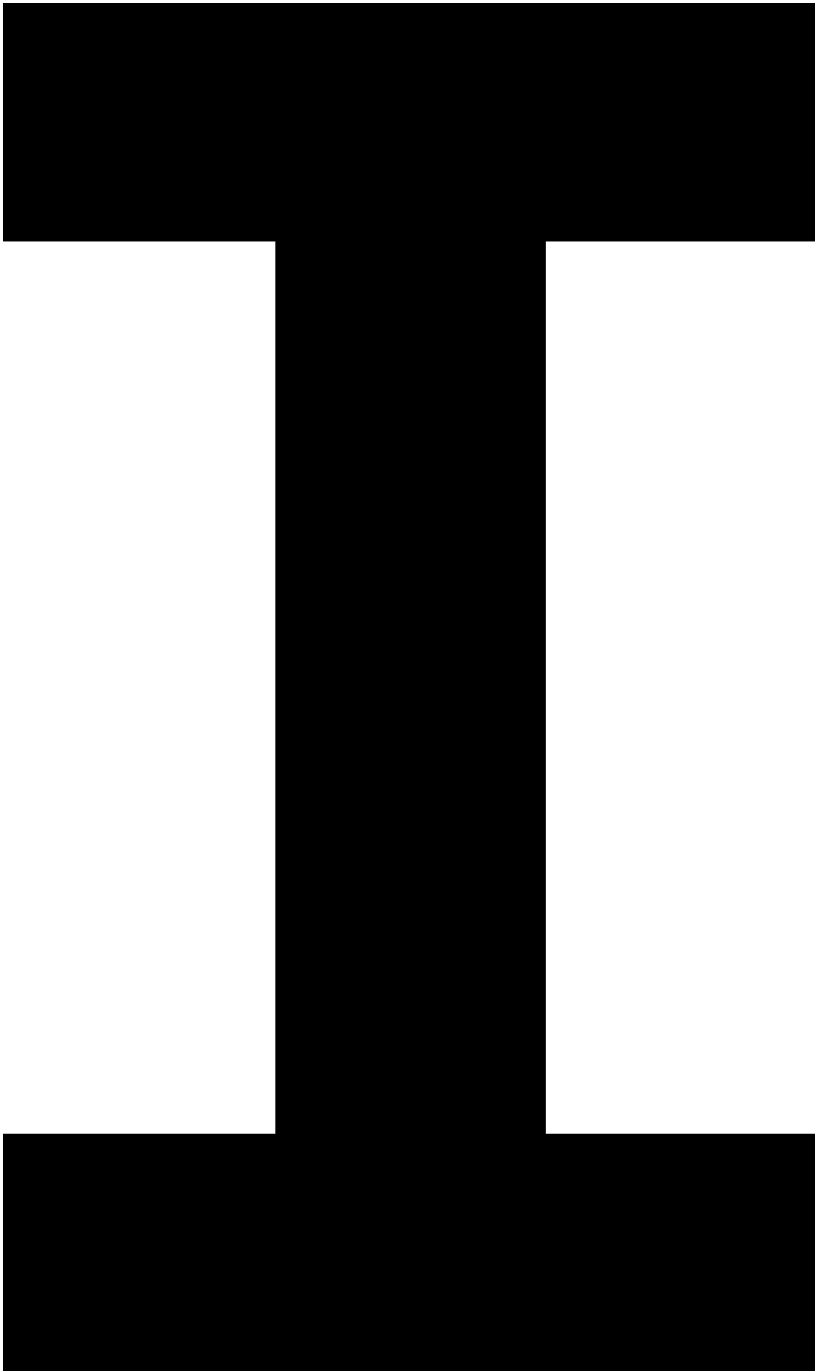
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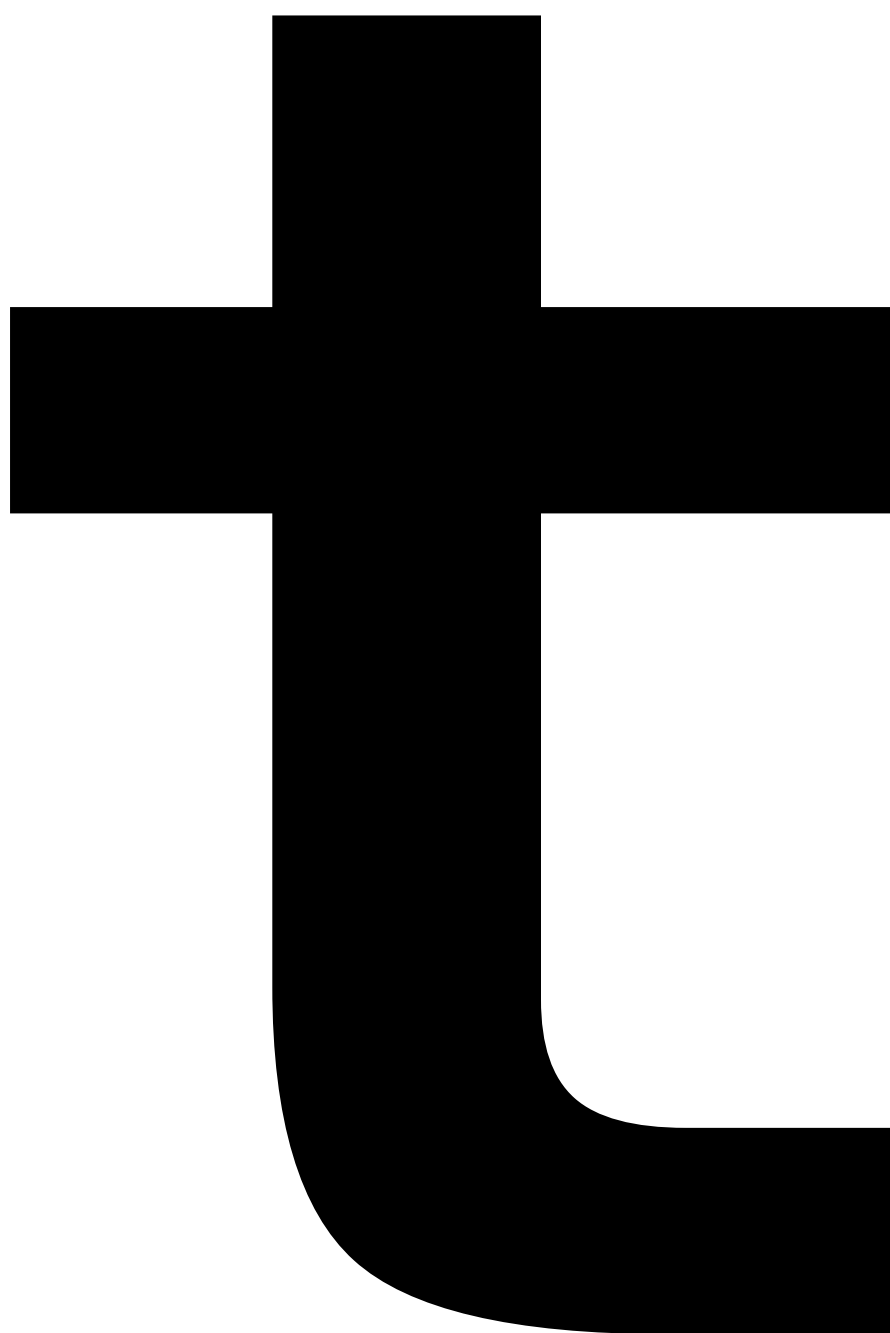


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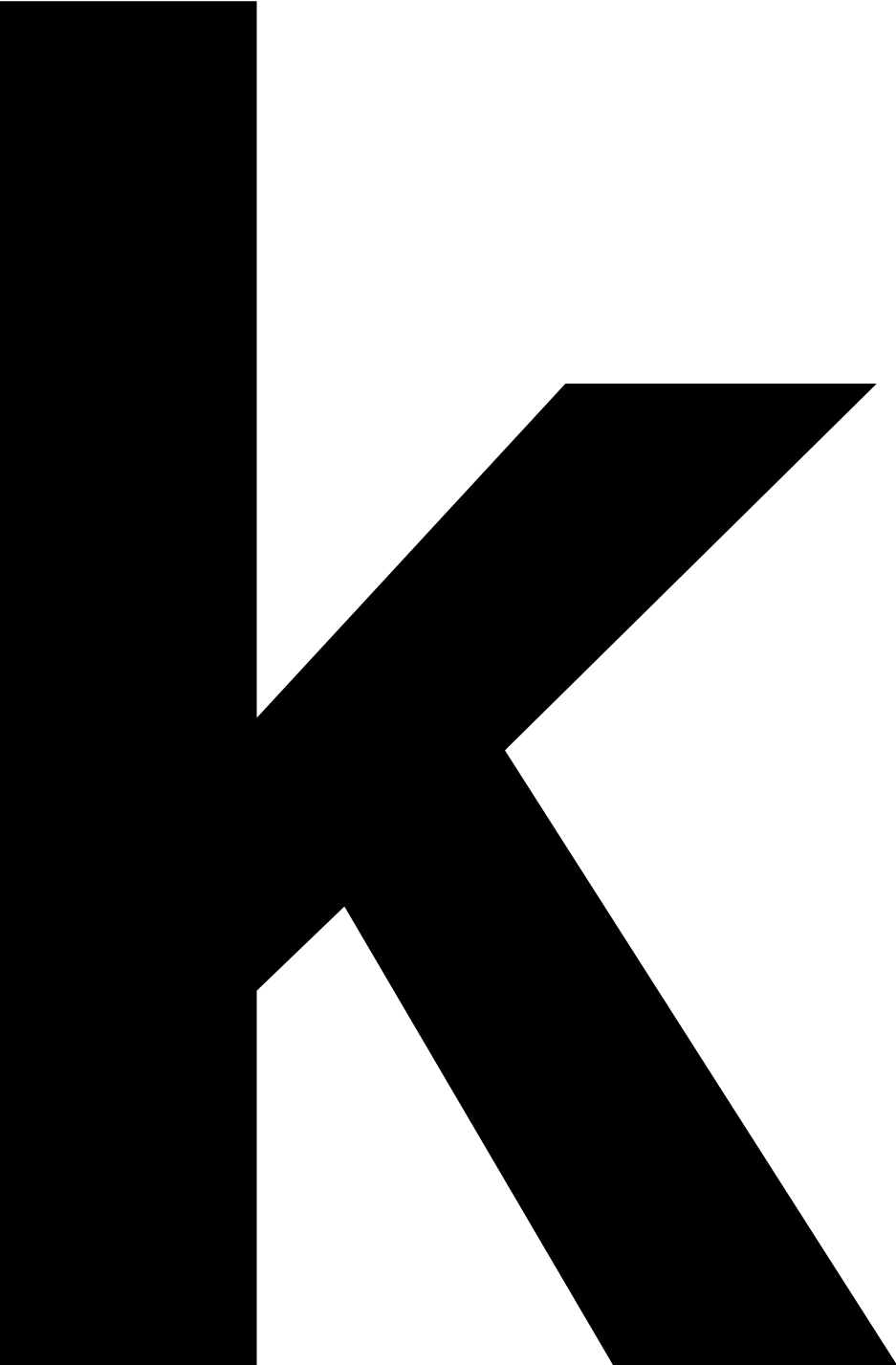
**10**













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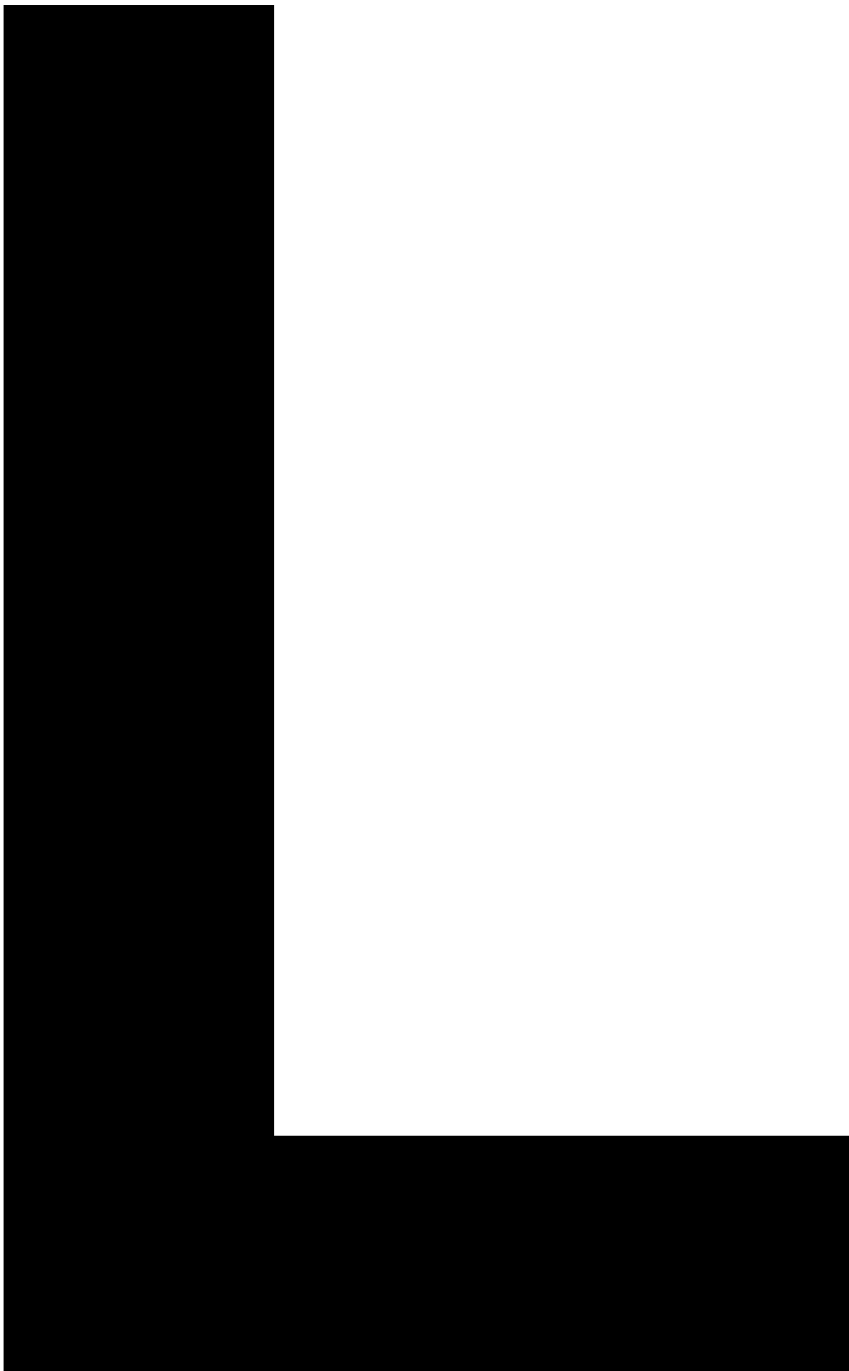














**5a**



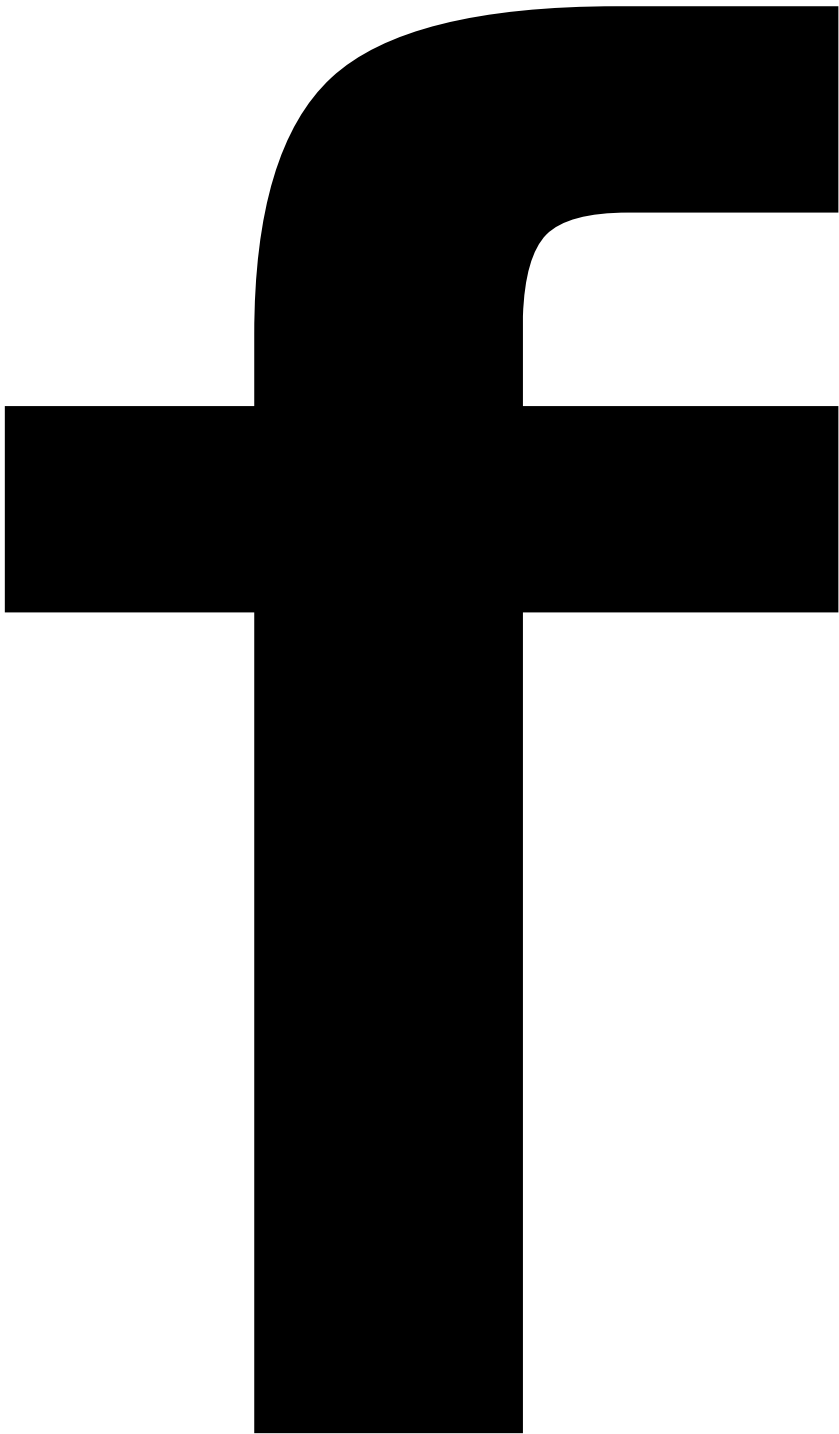




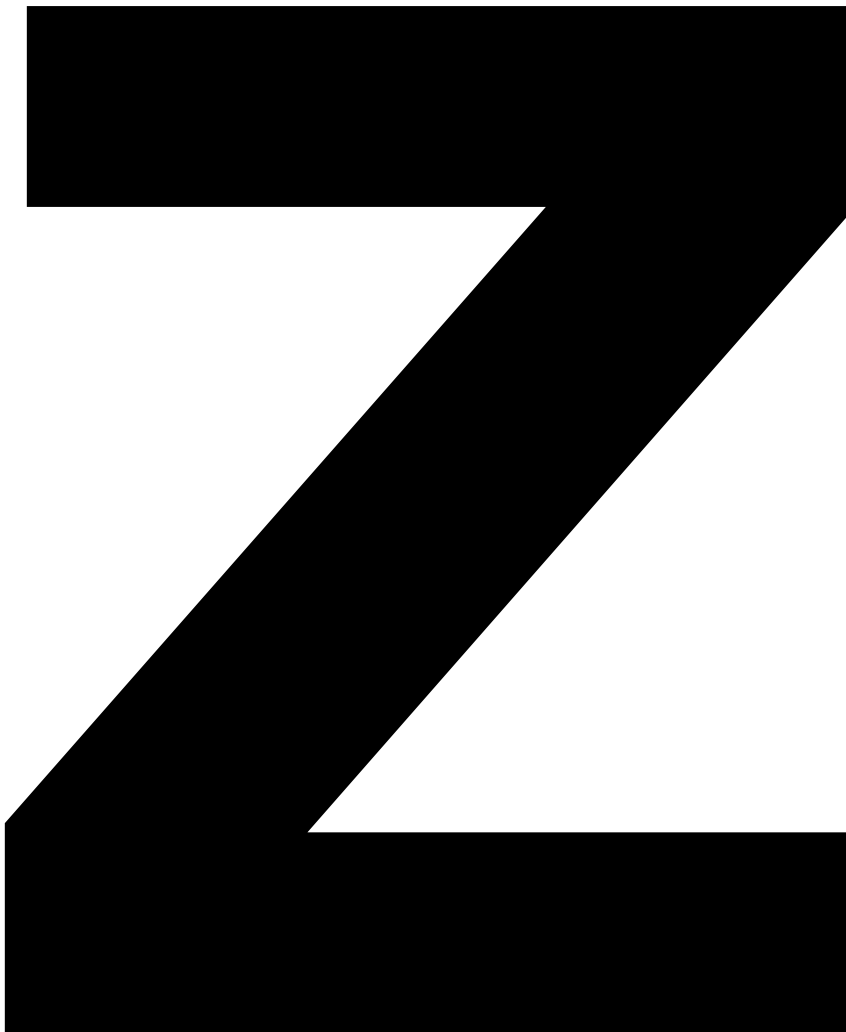
















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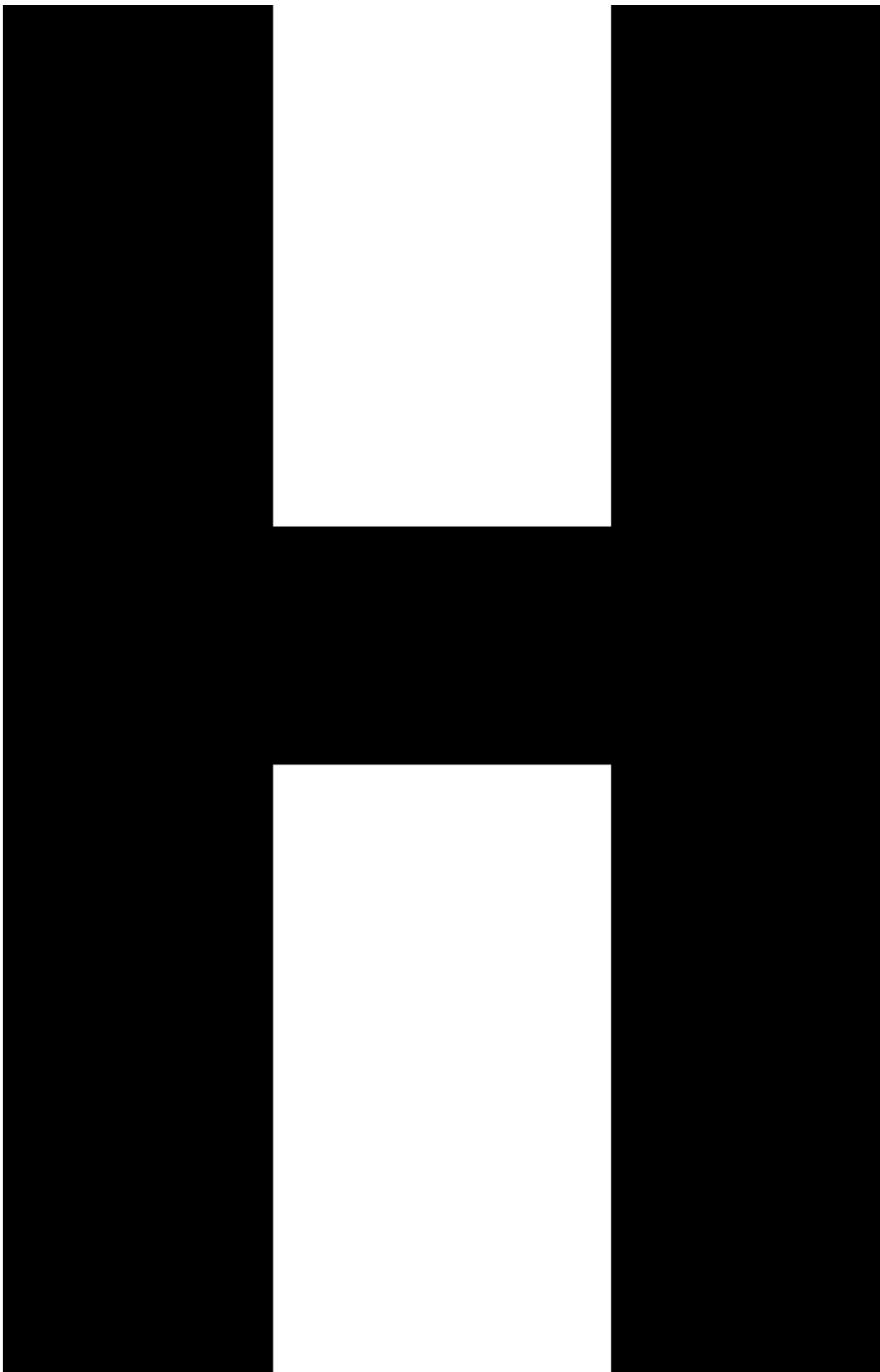
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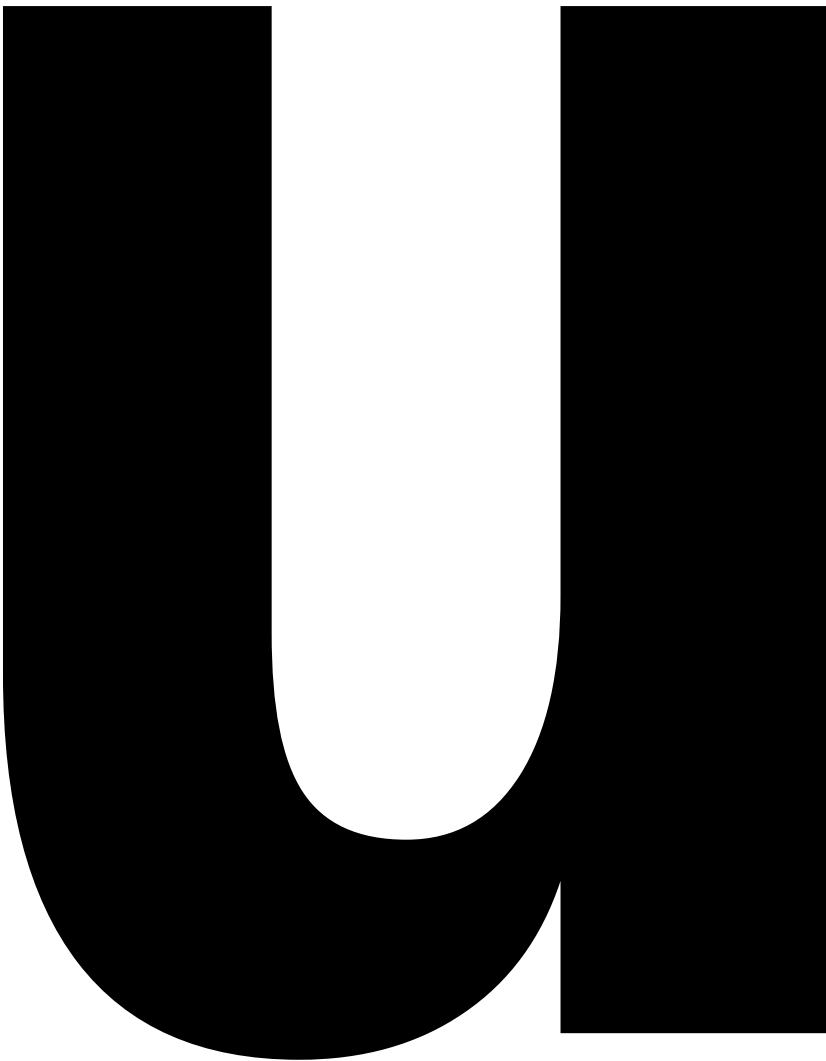










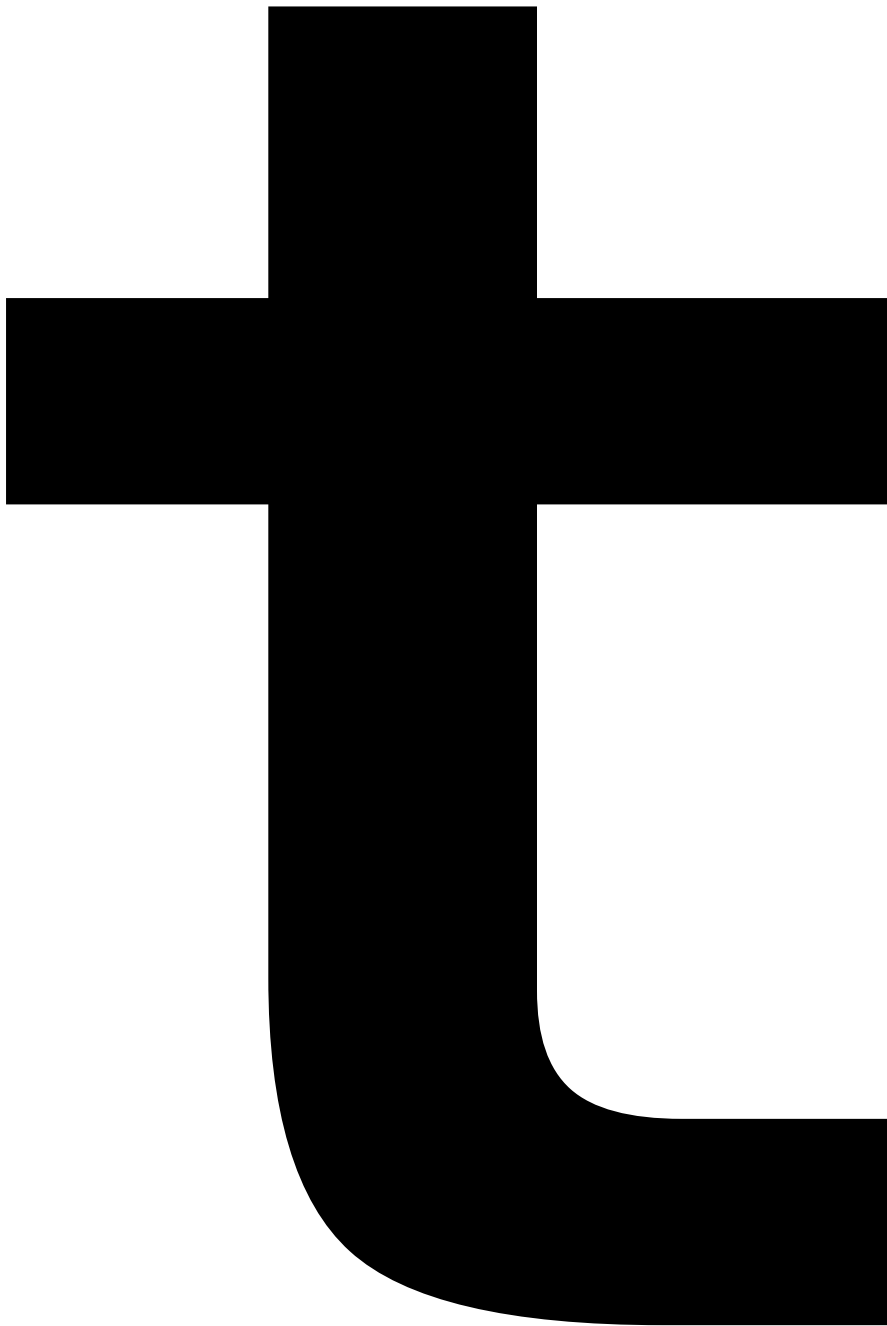














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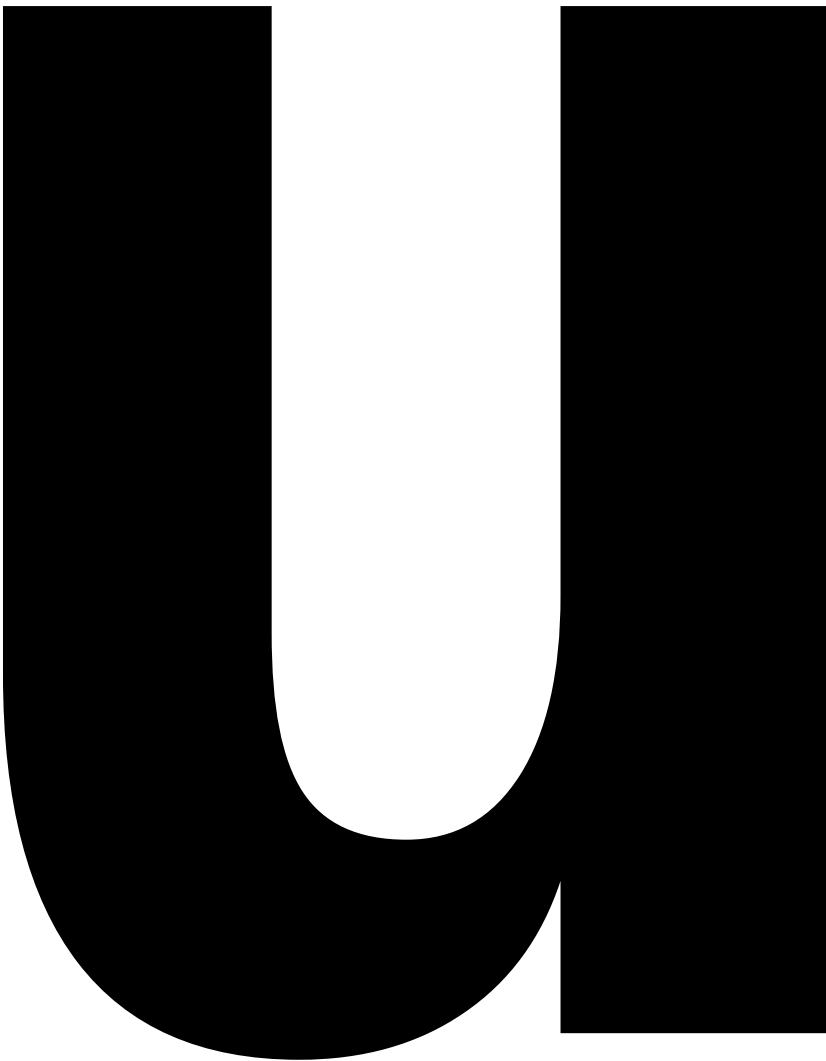
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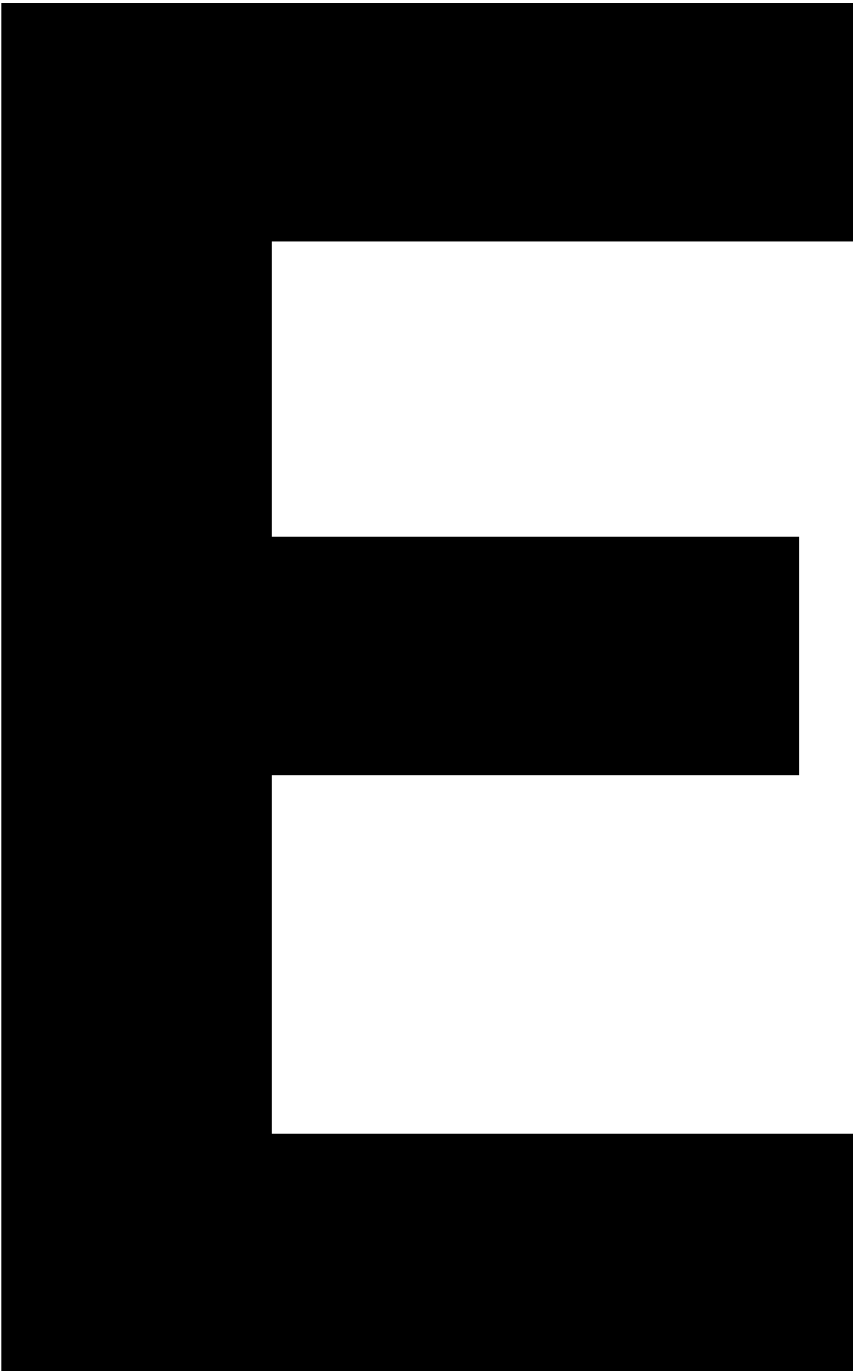






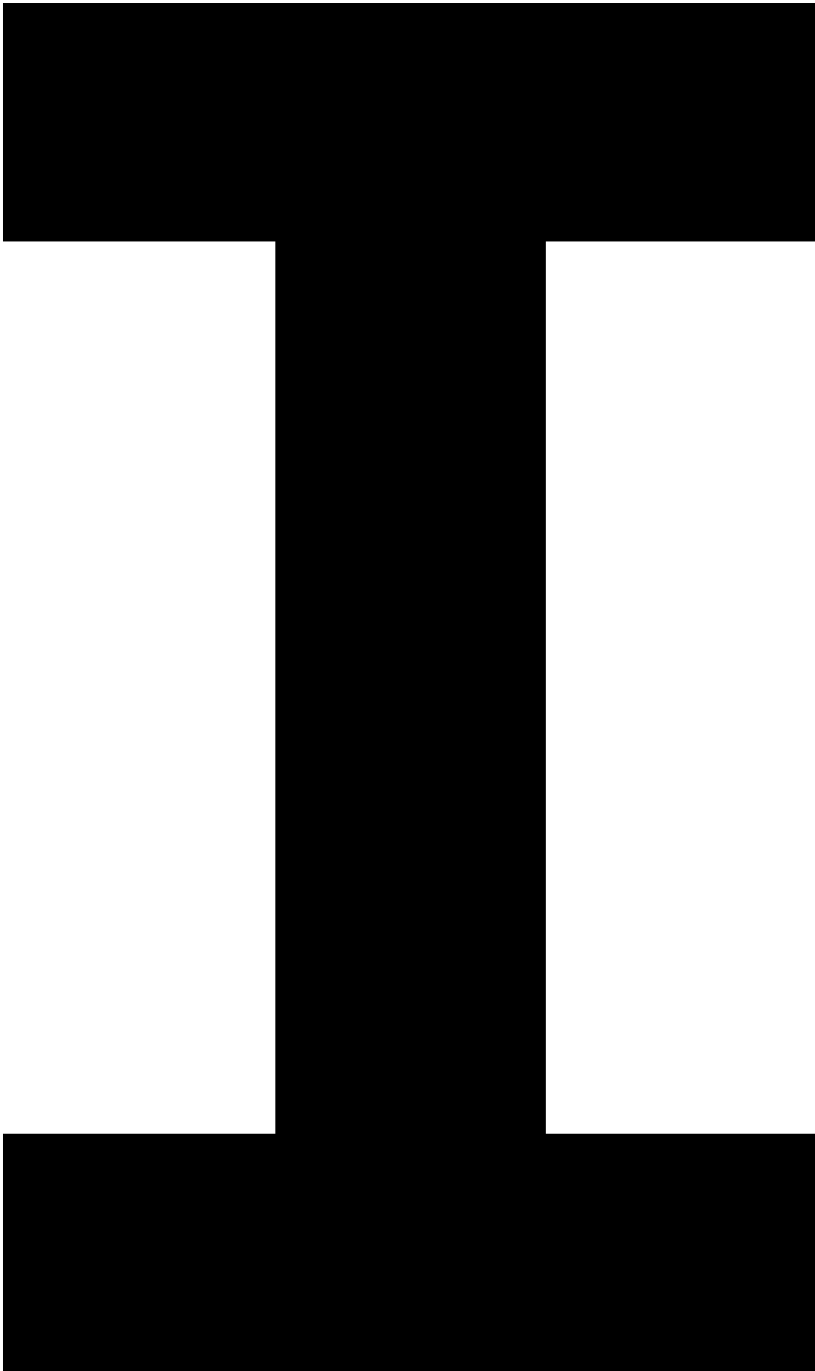
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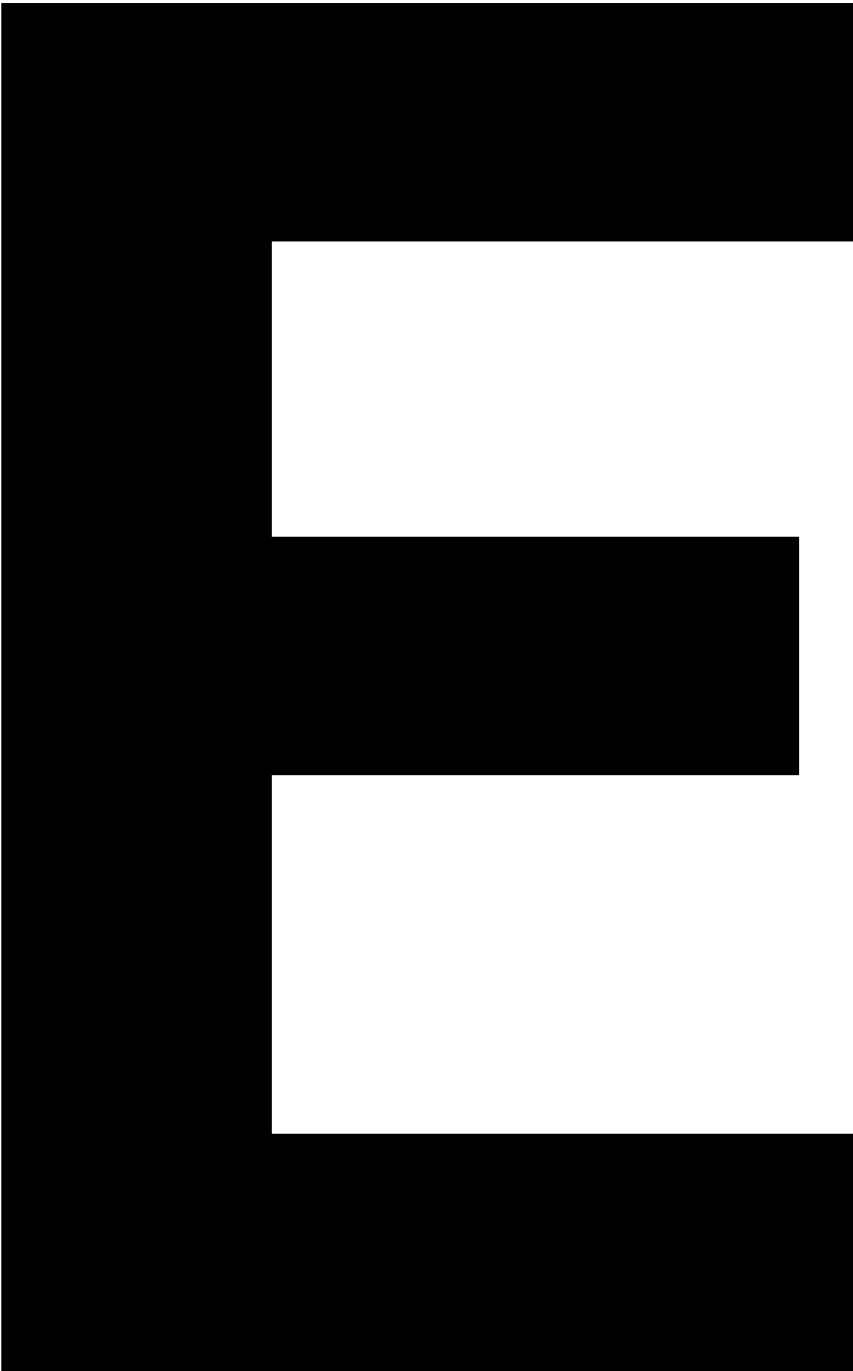






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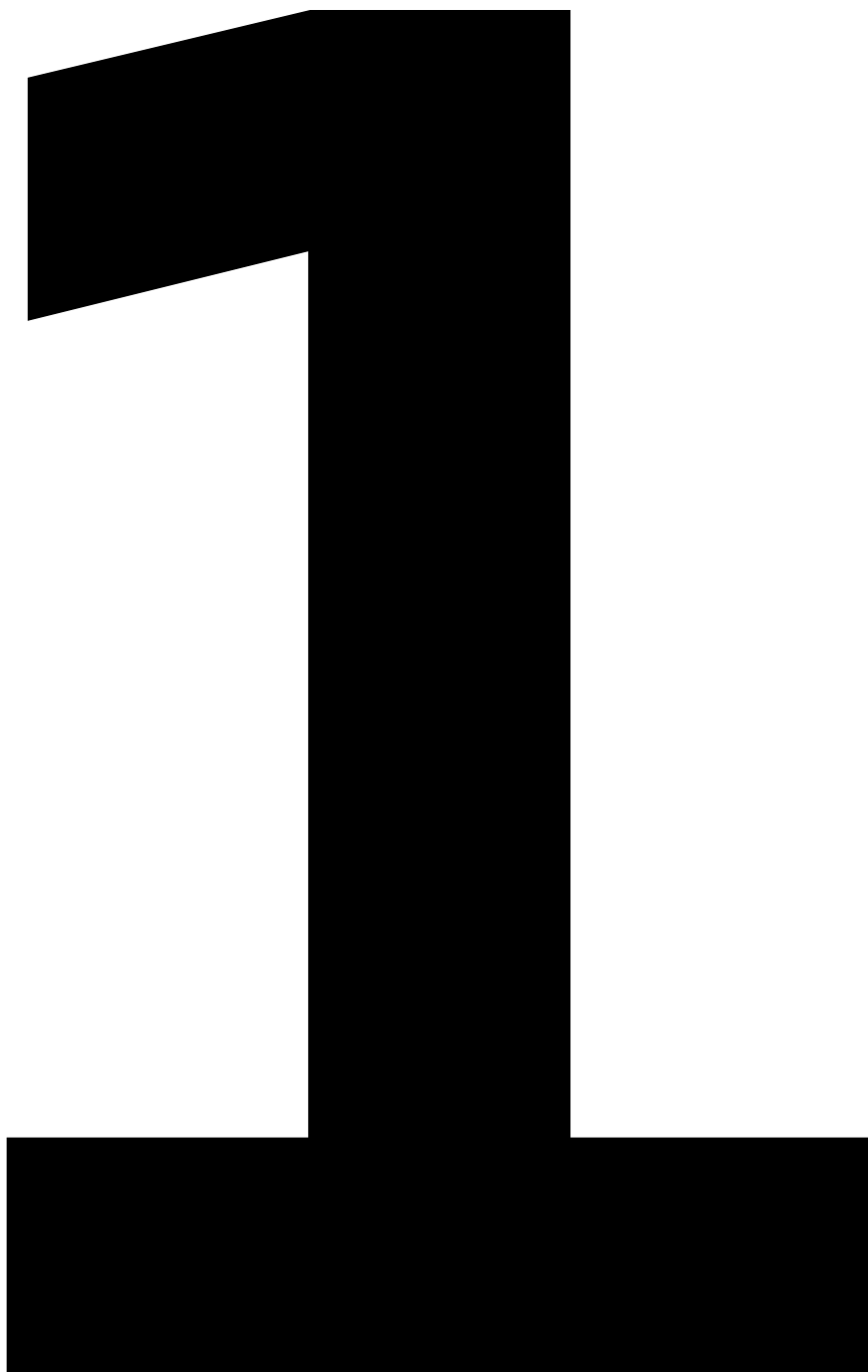




















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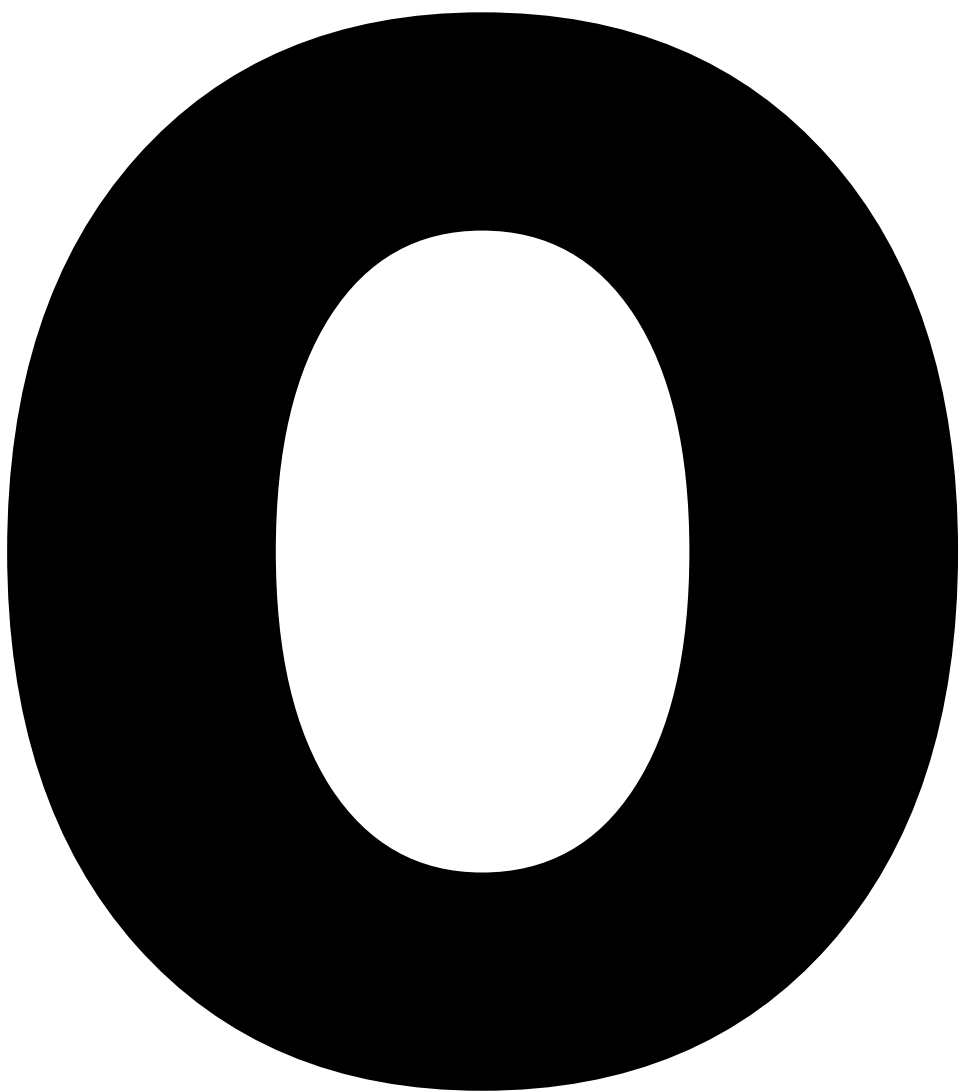














**r**



**o**



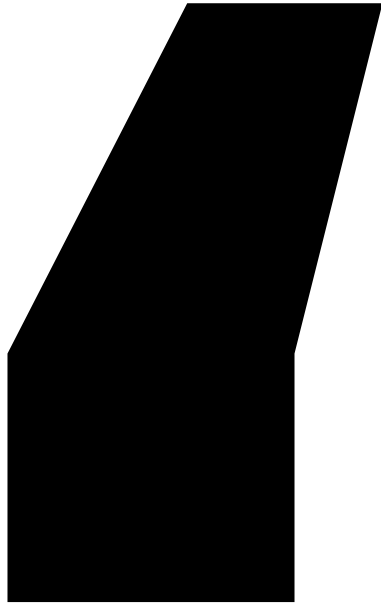
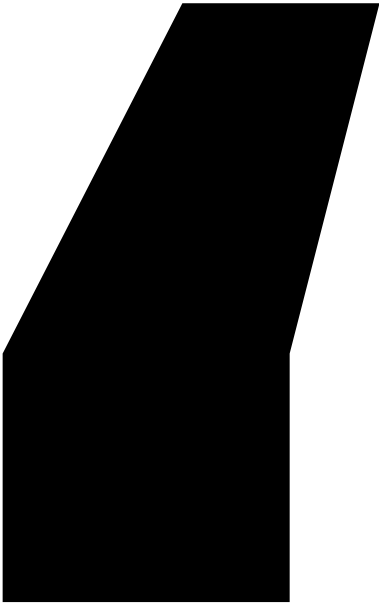




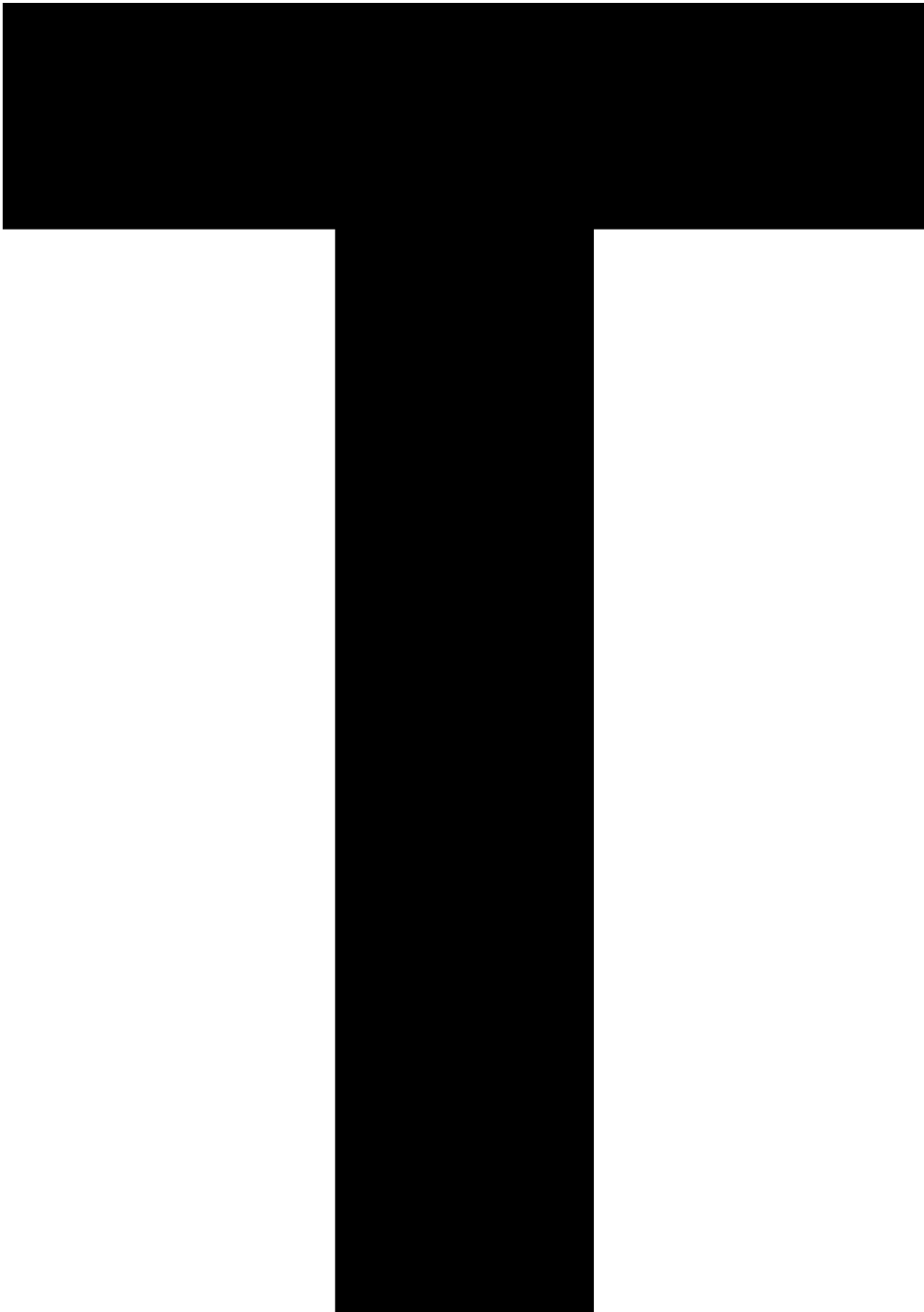


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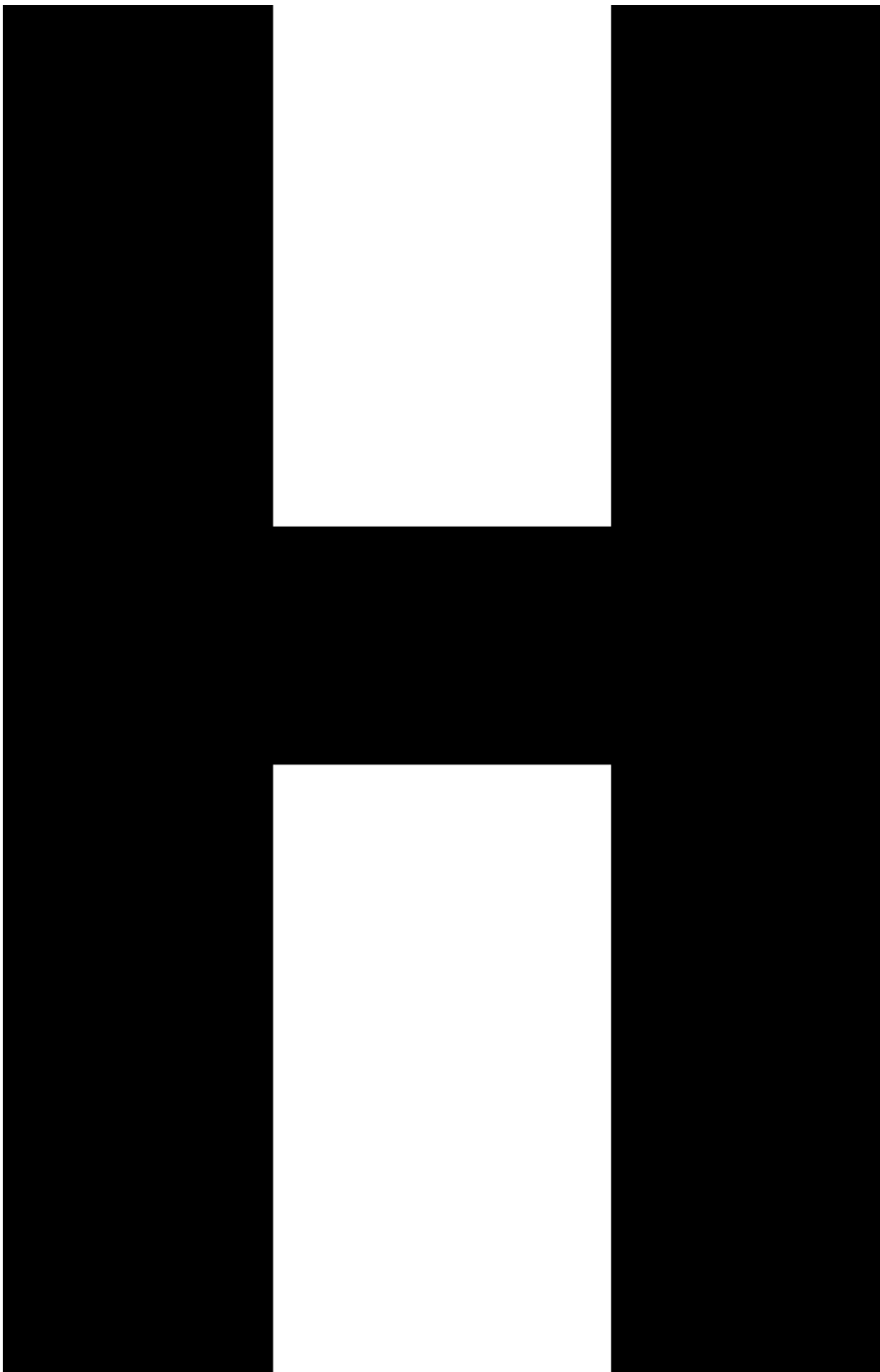
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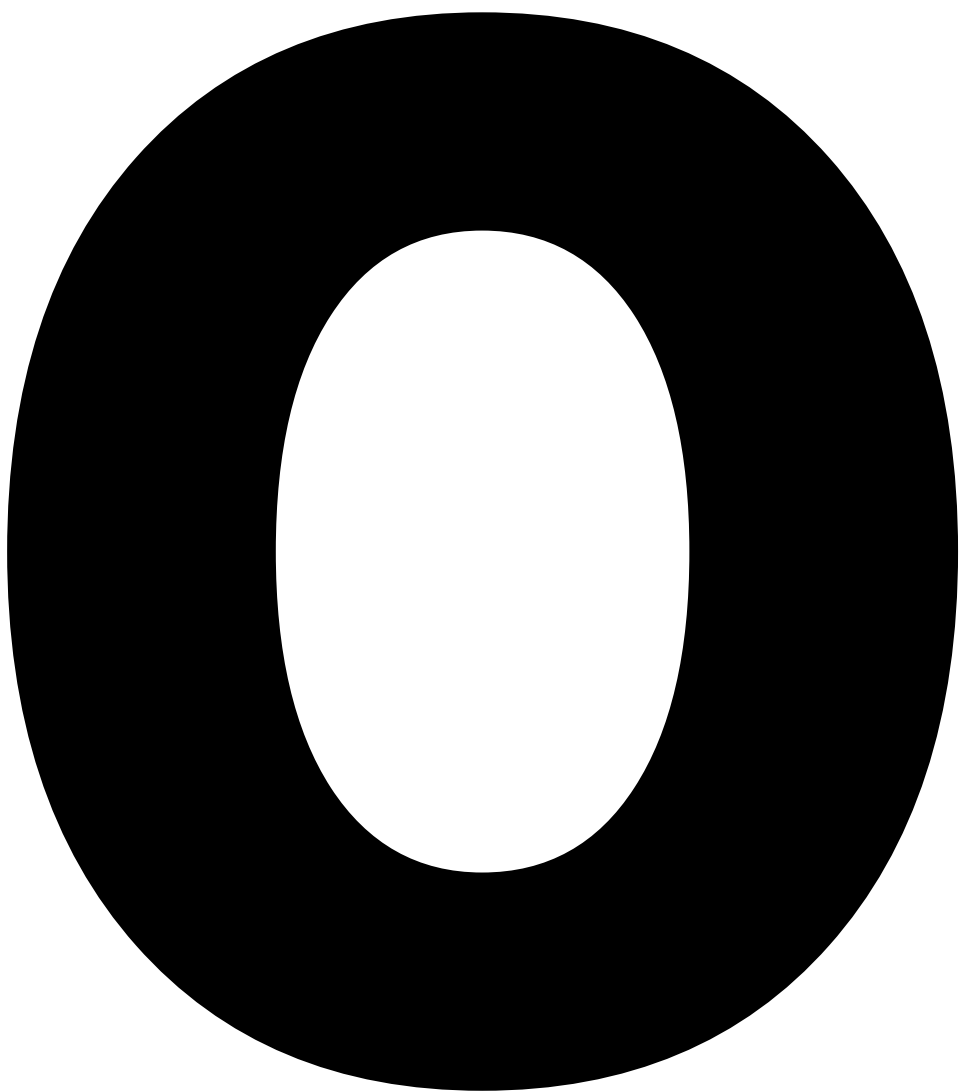


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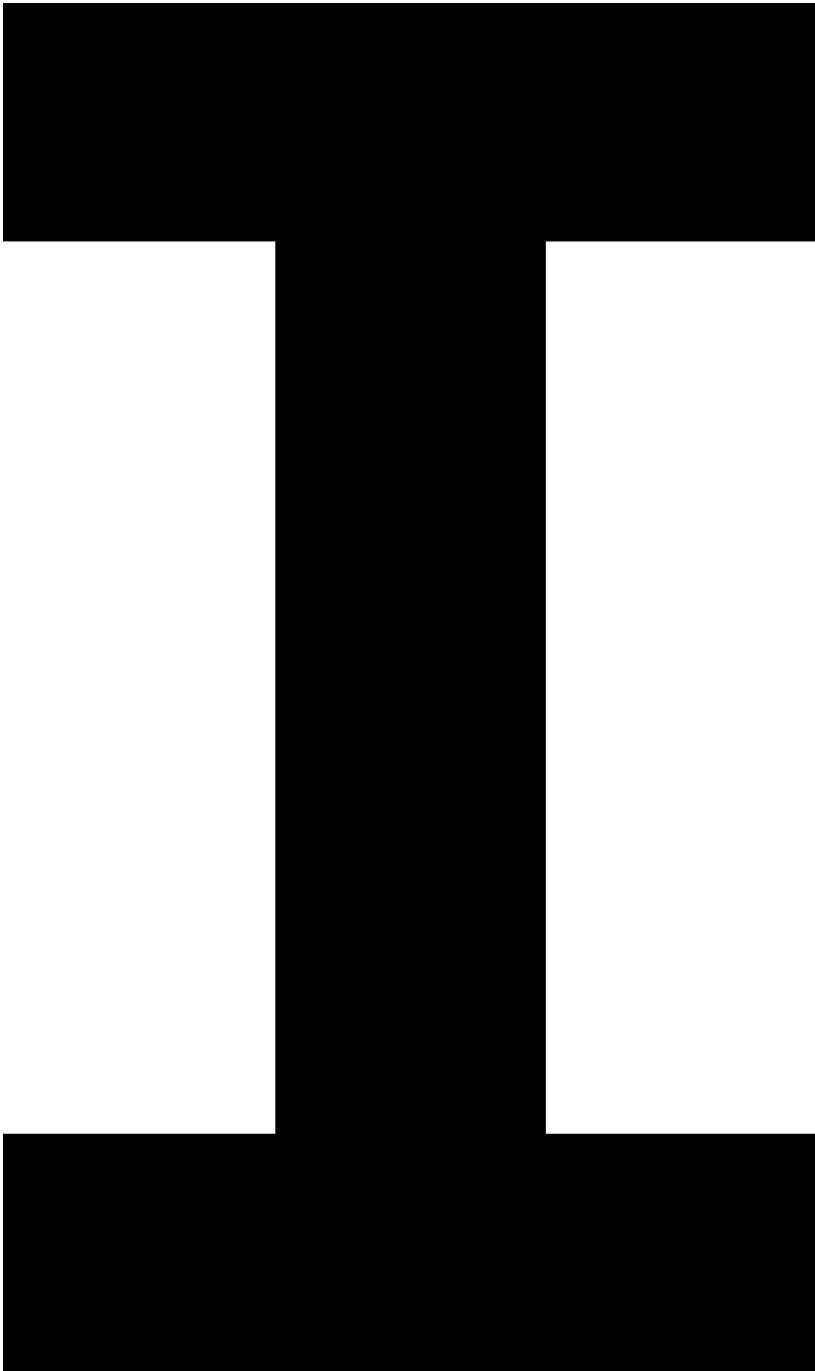
**C**













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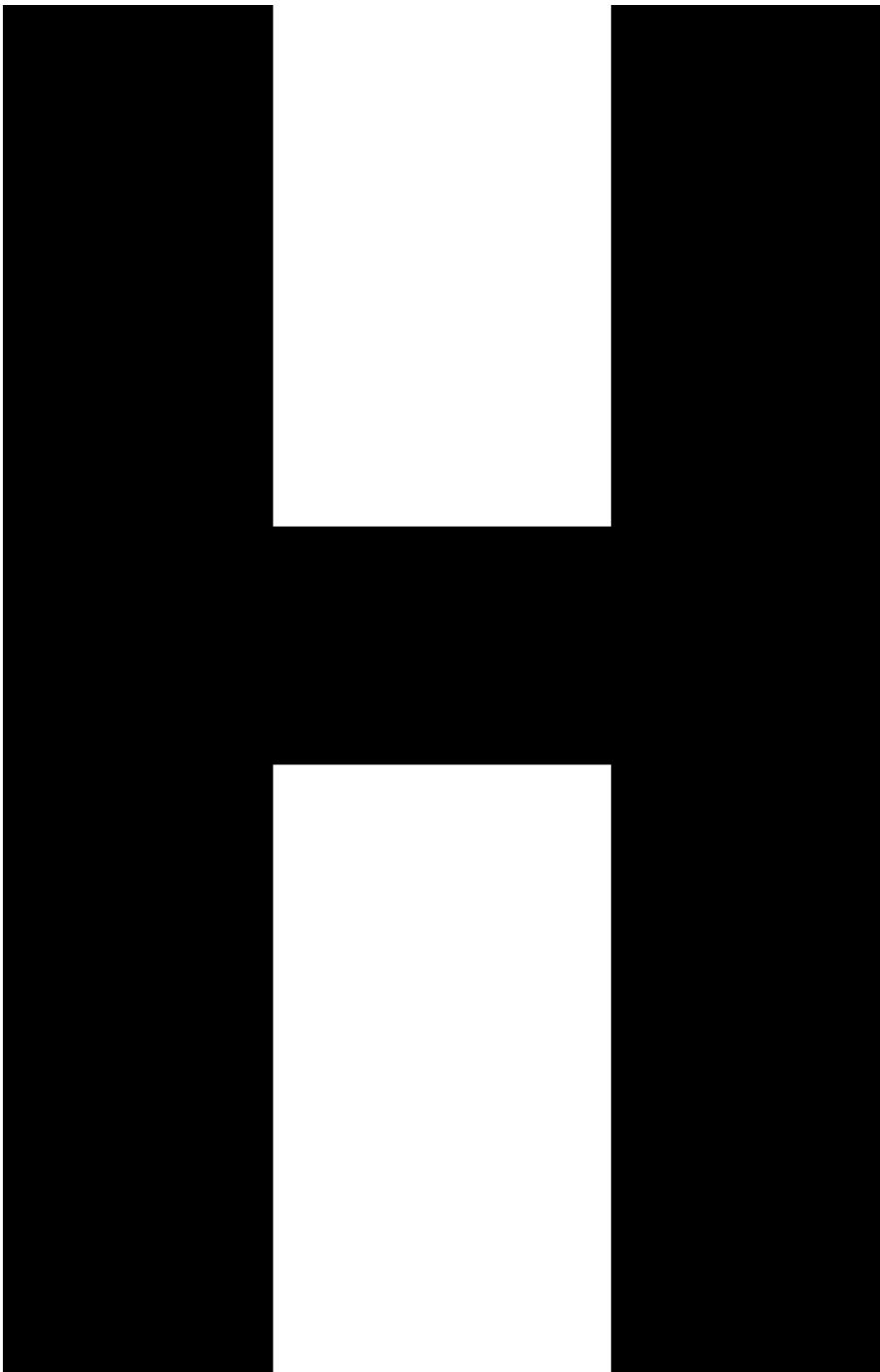
2













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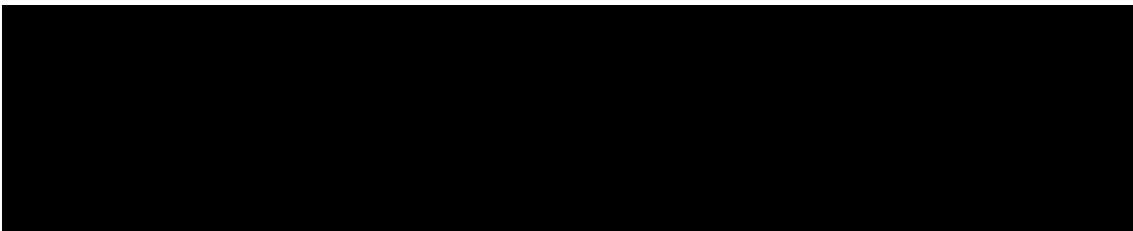


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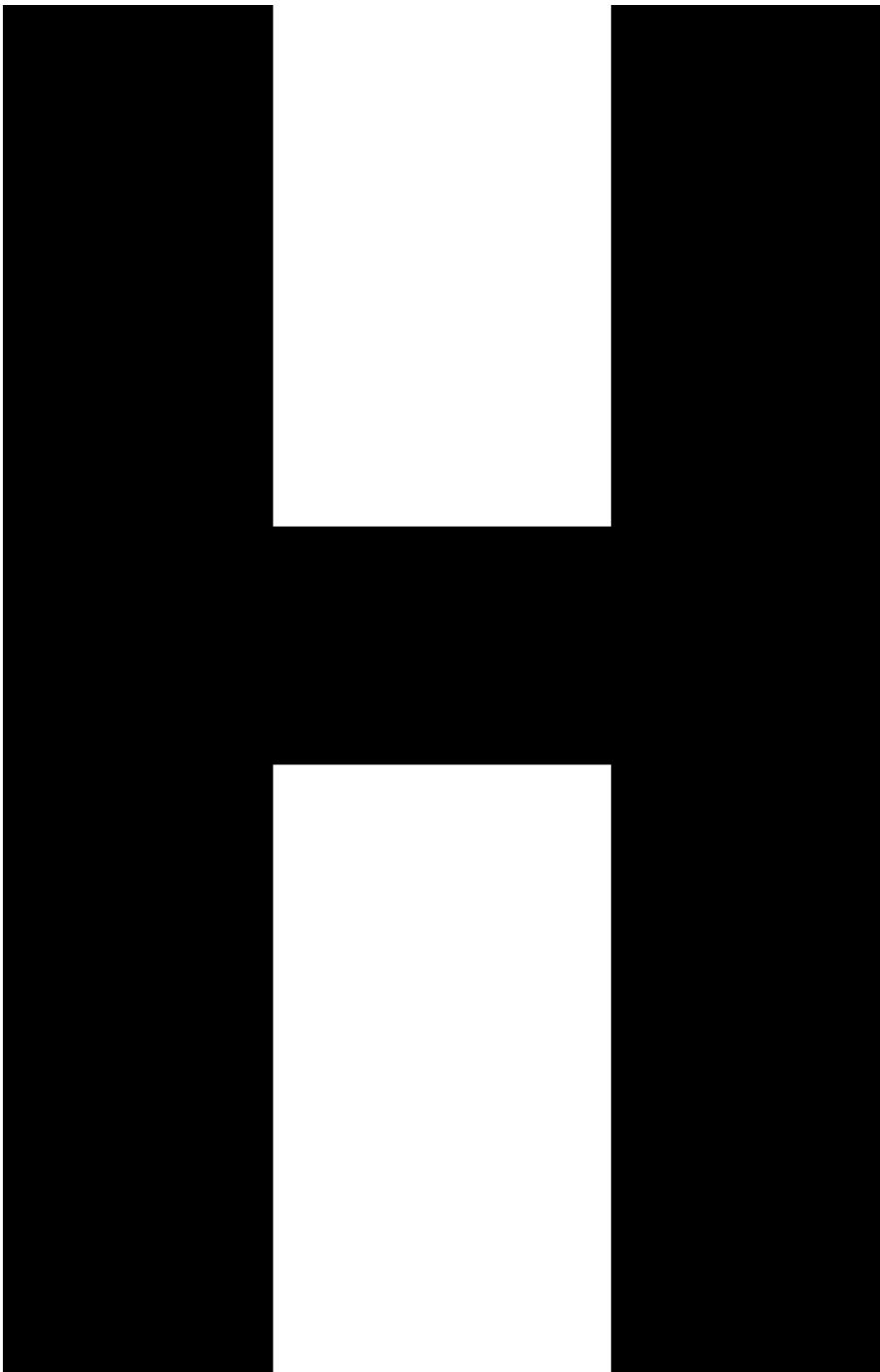




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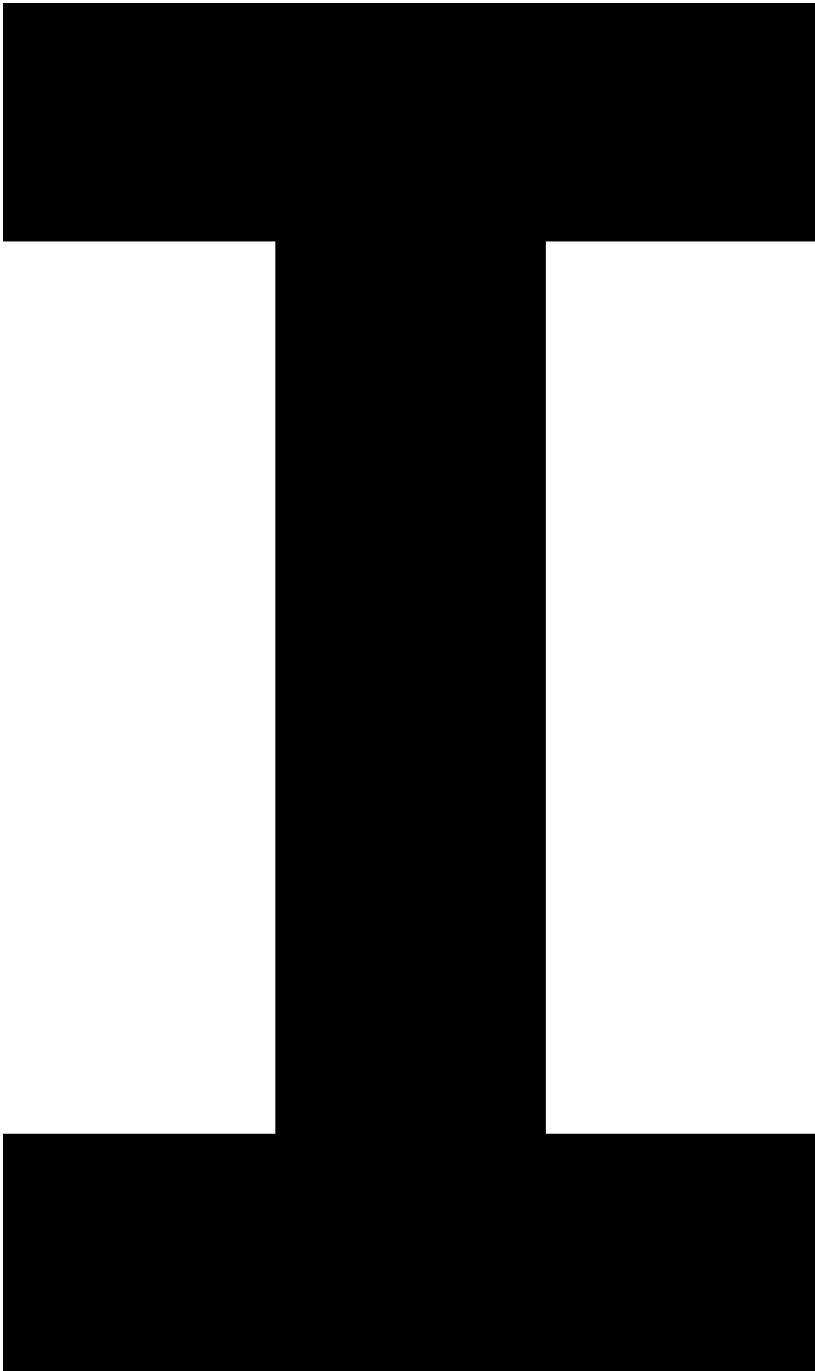






**S**









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**R**



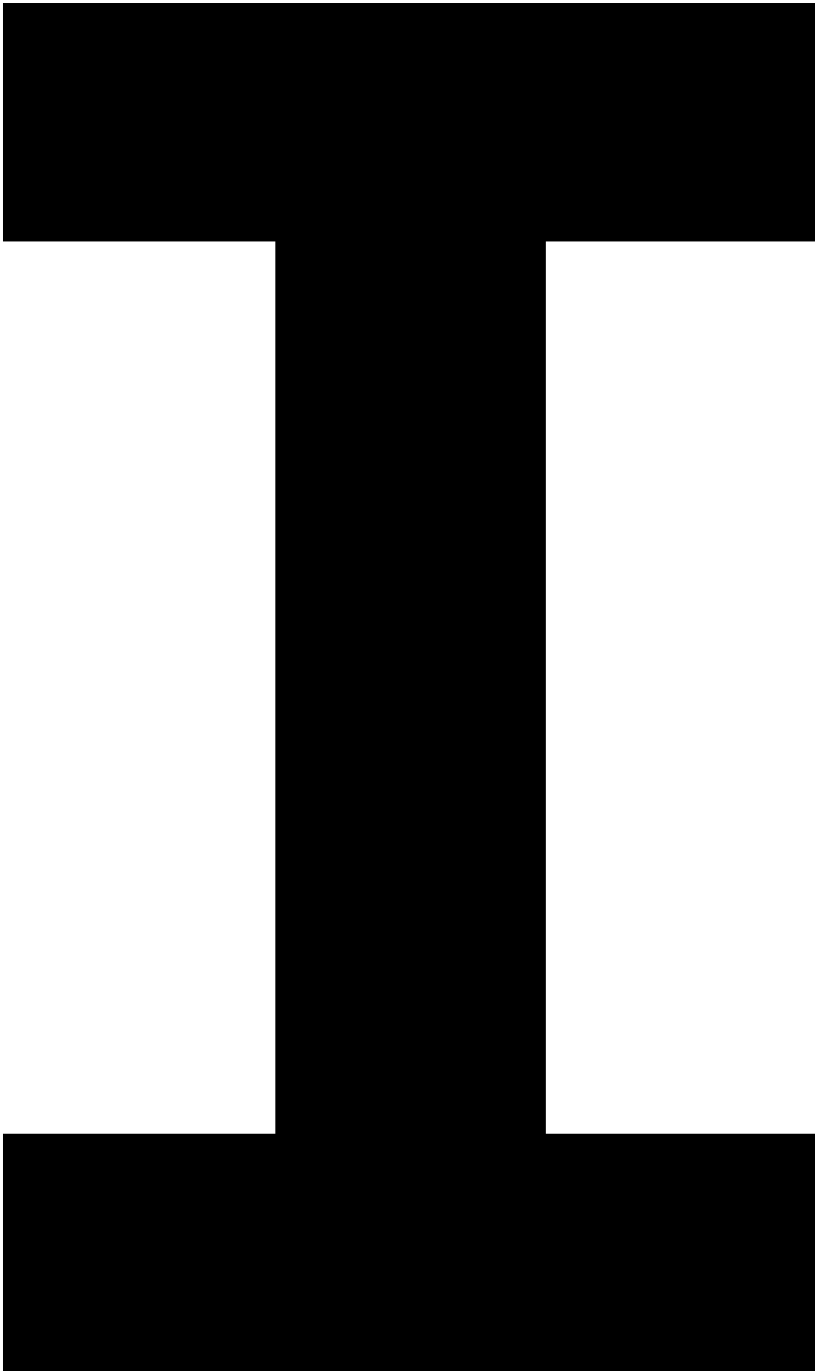




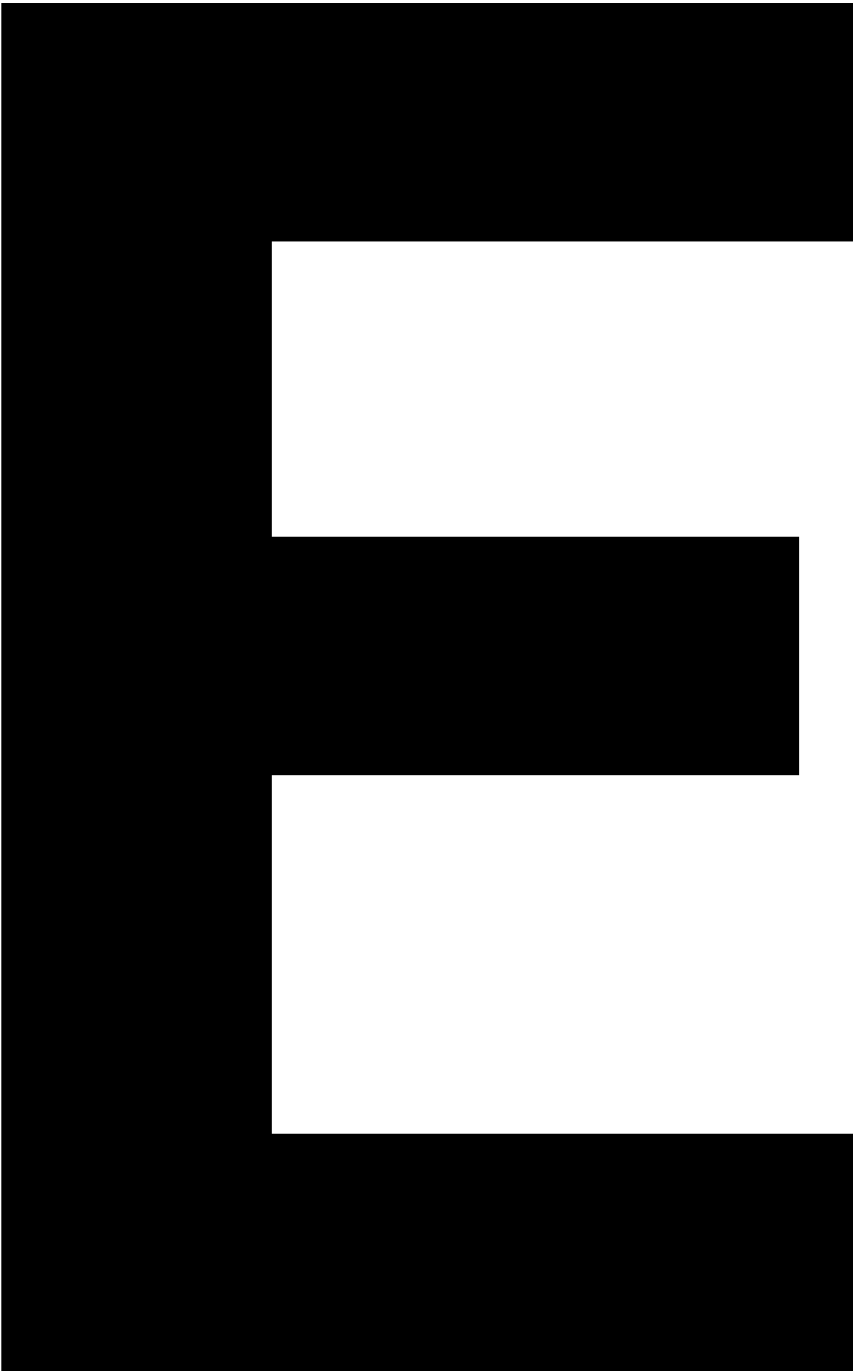


**V**













**w**

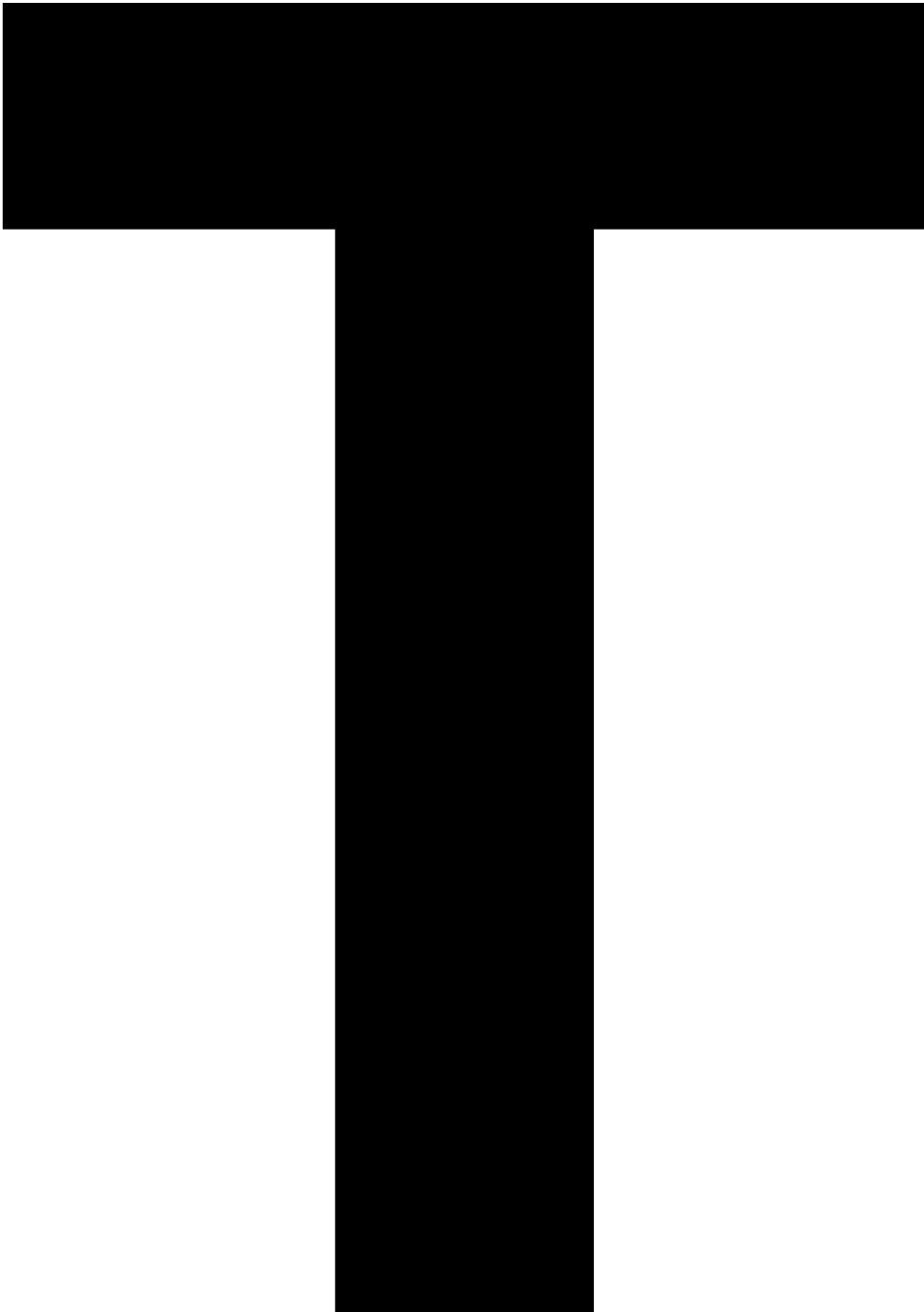






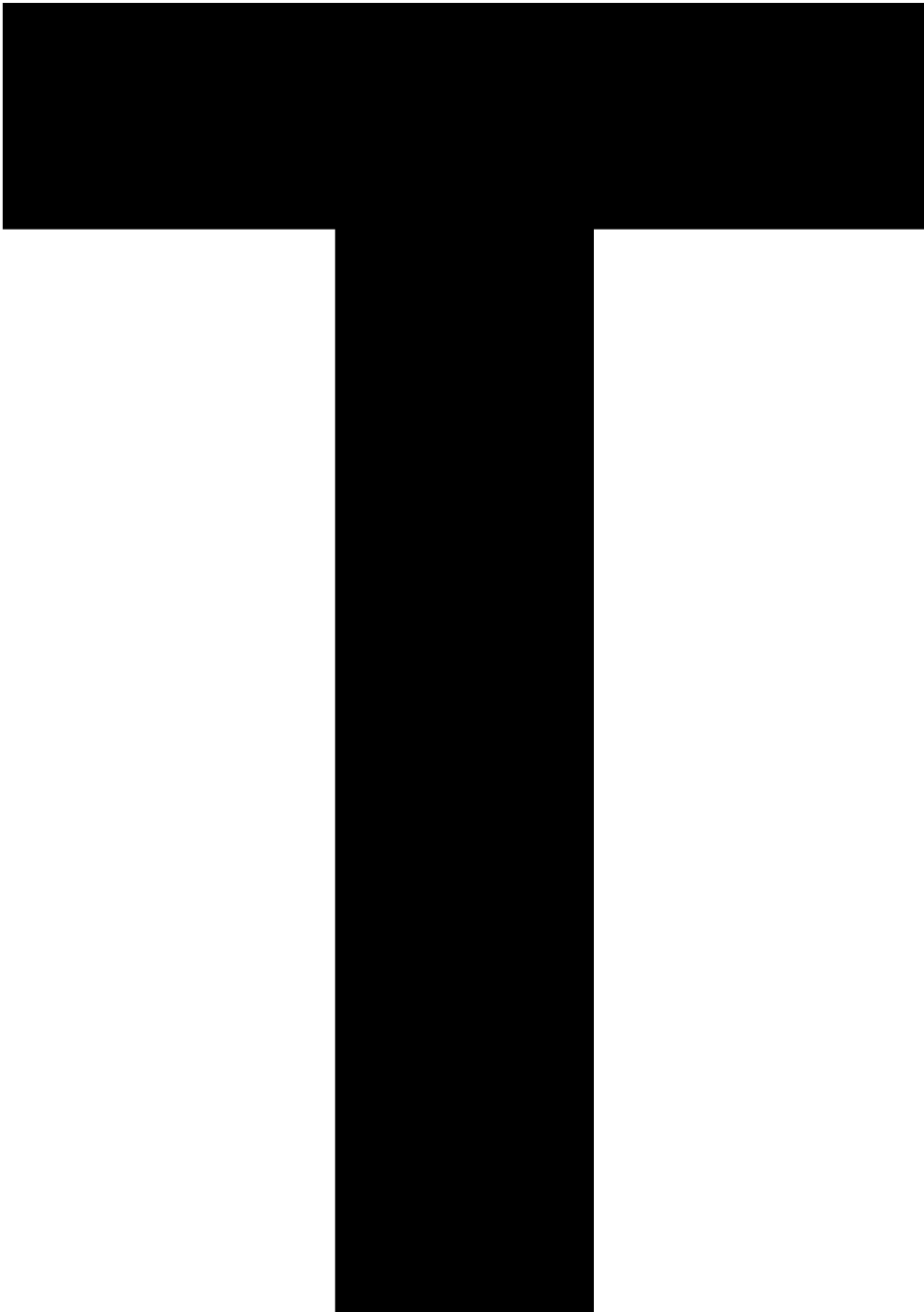


















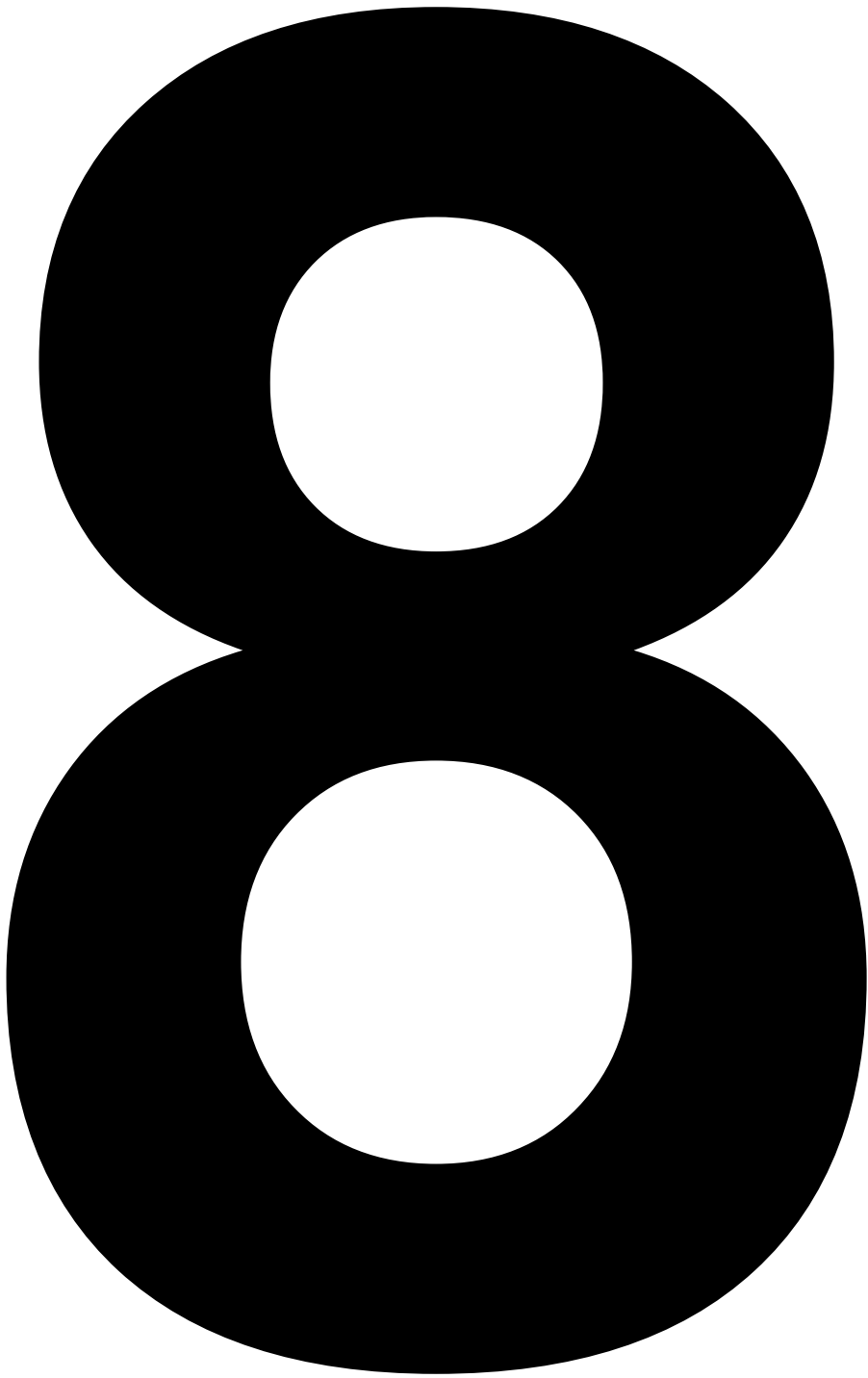
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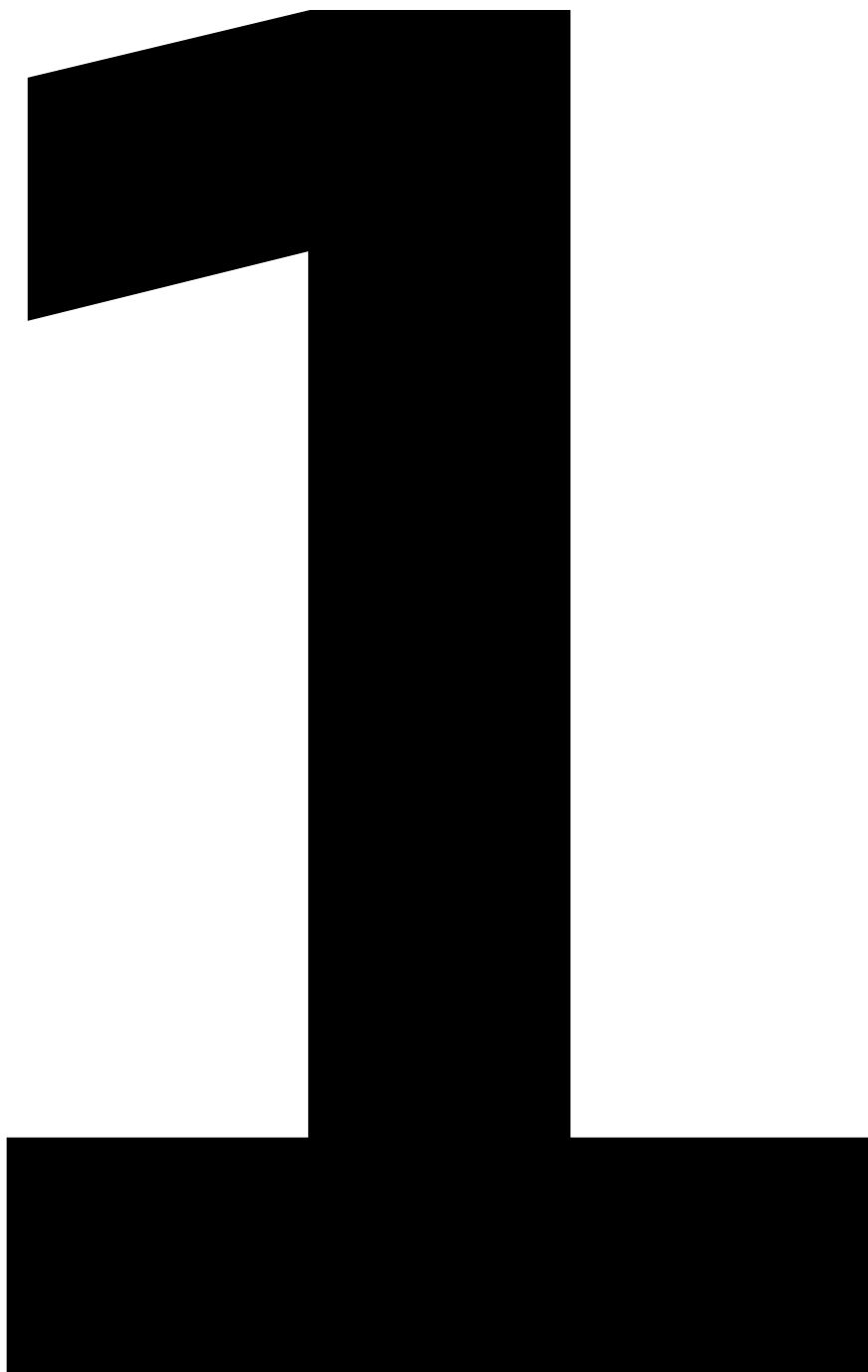
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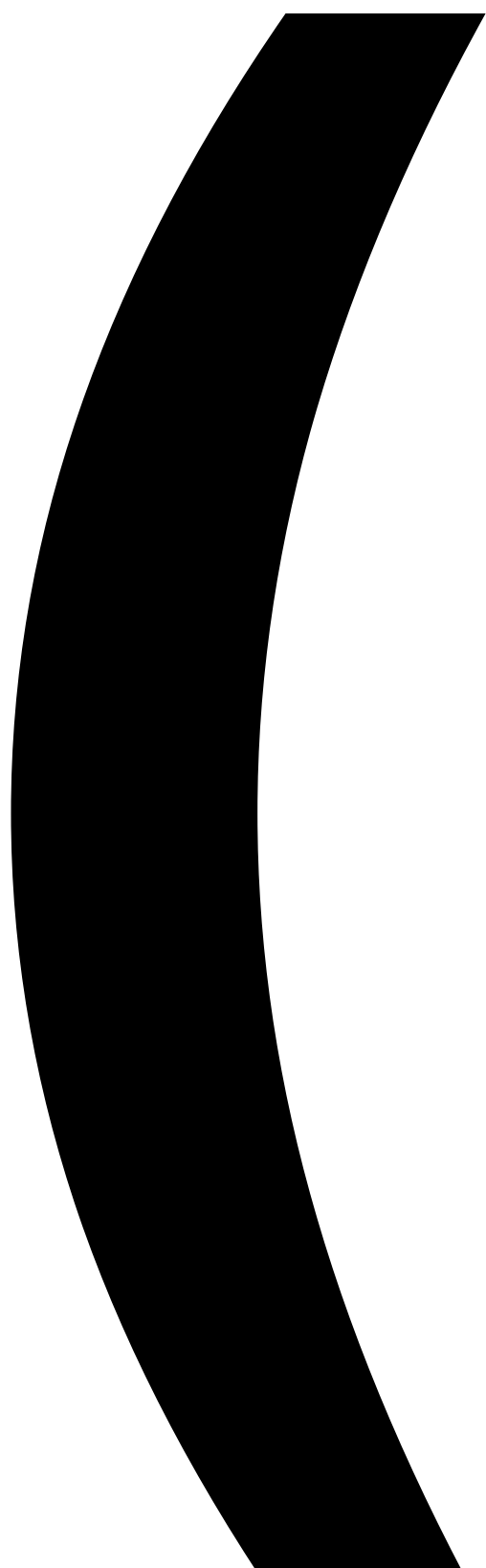




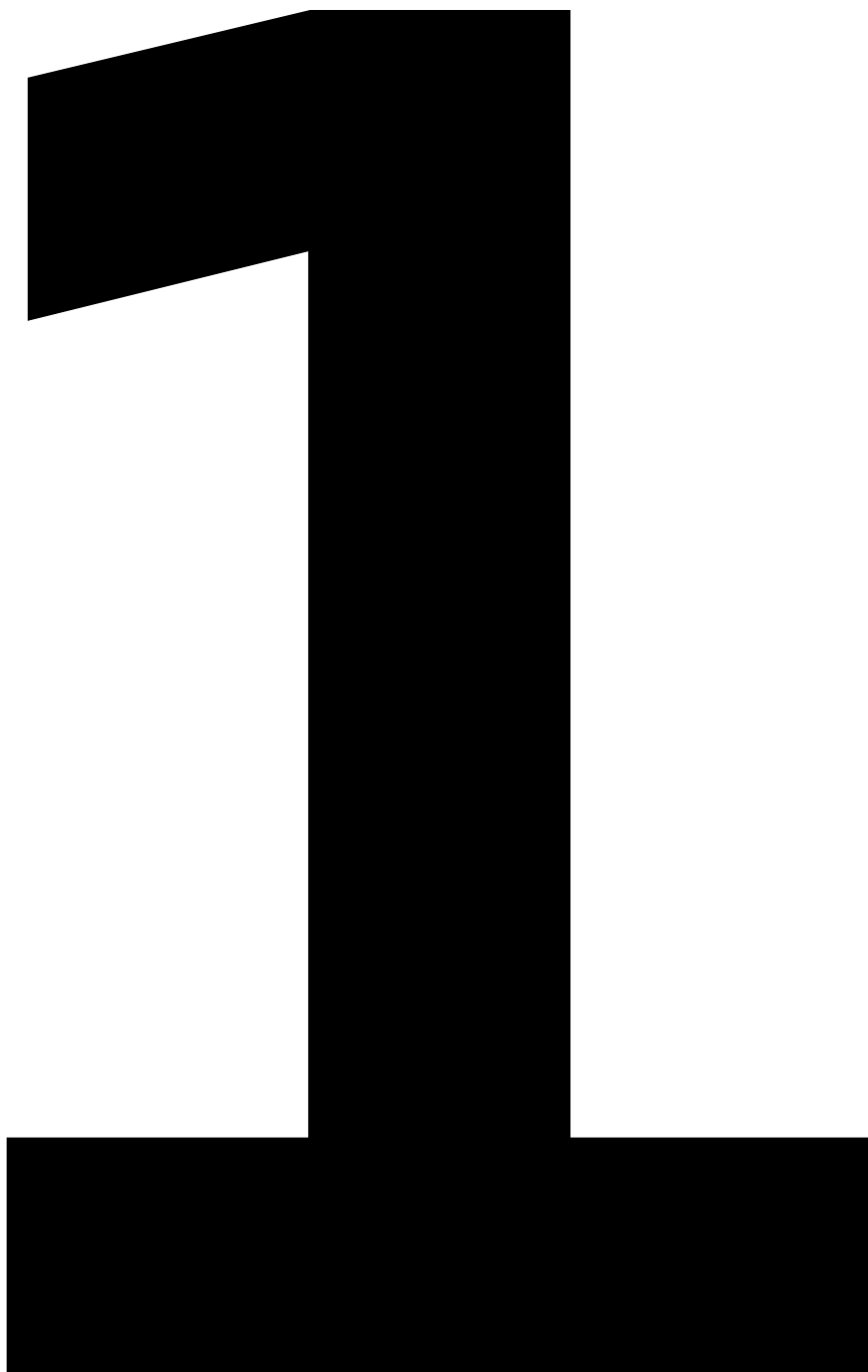














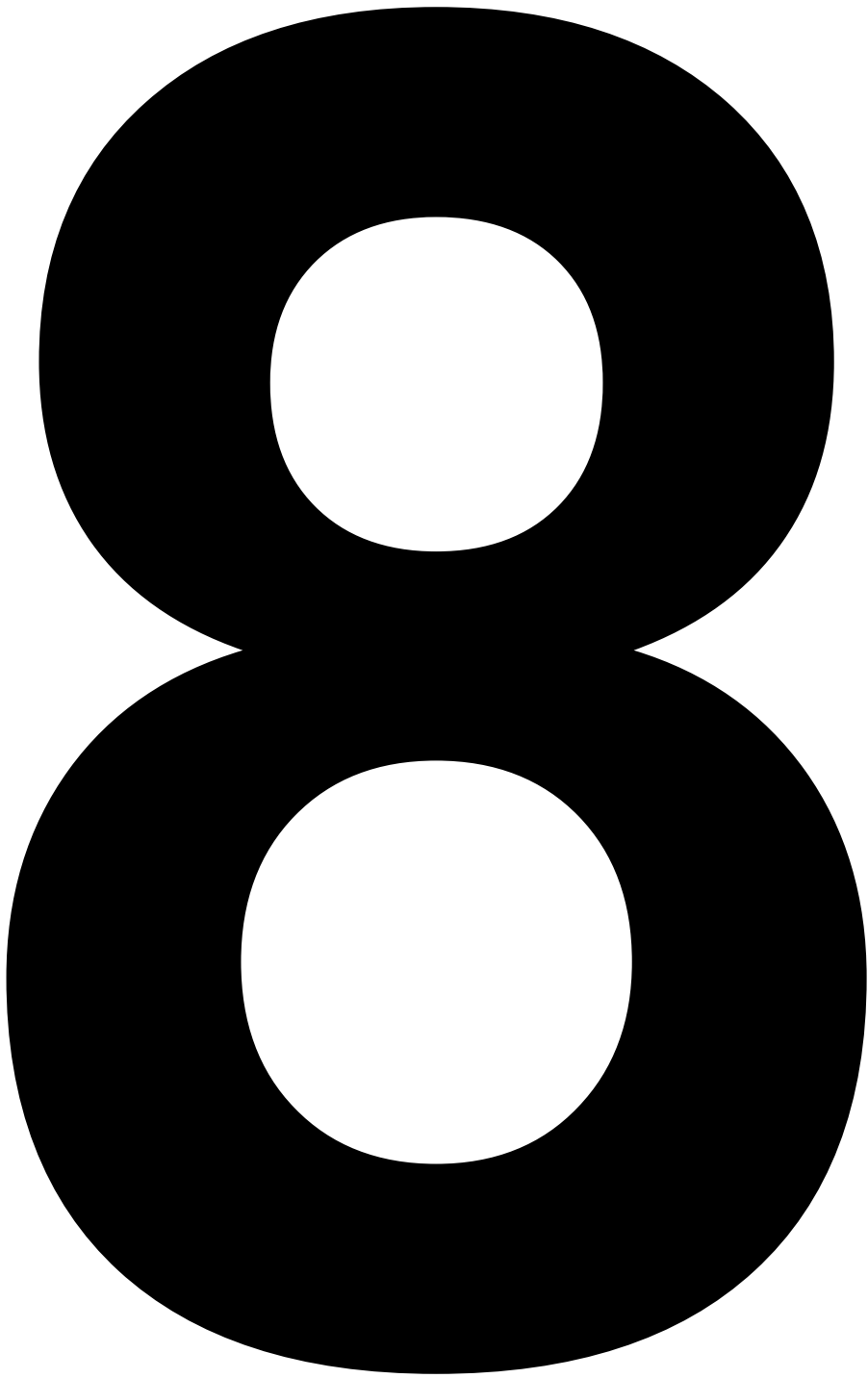


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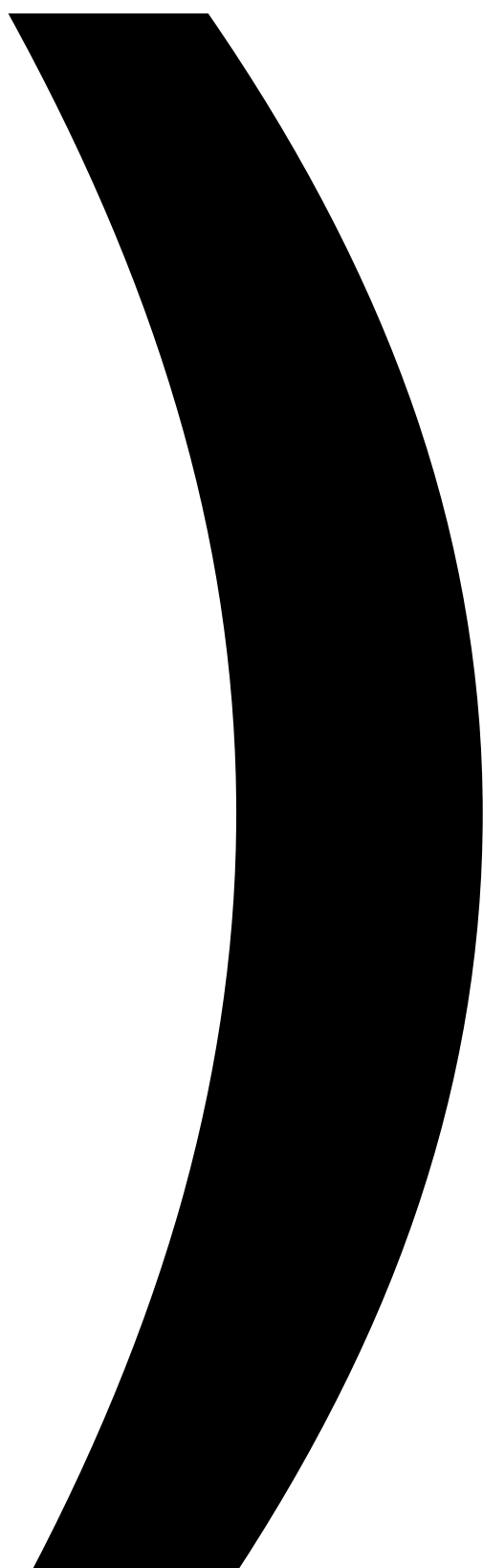


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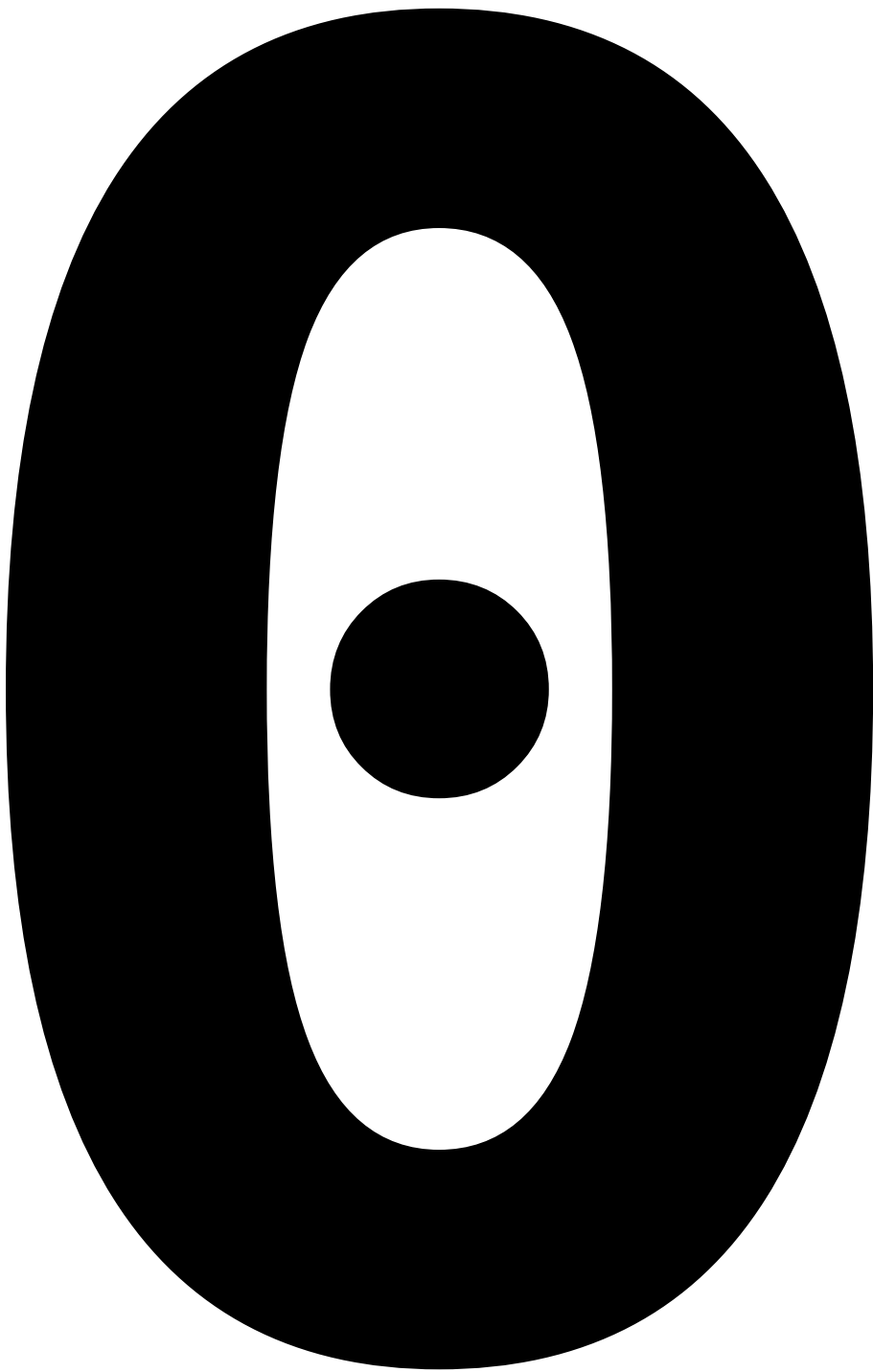






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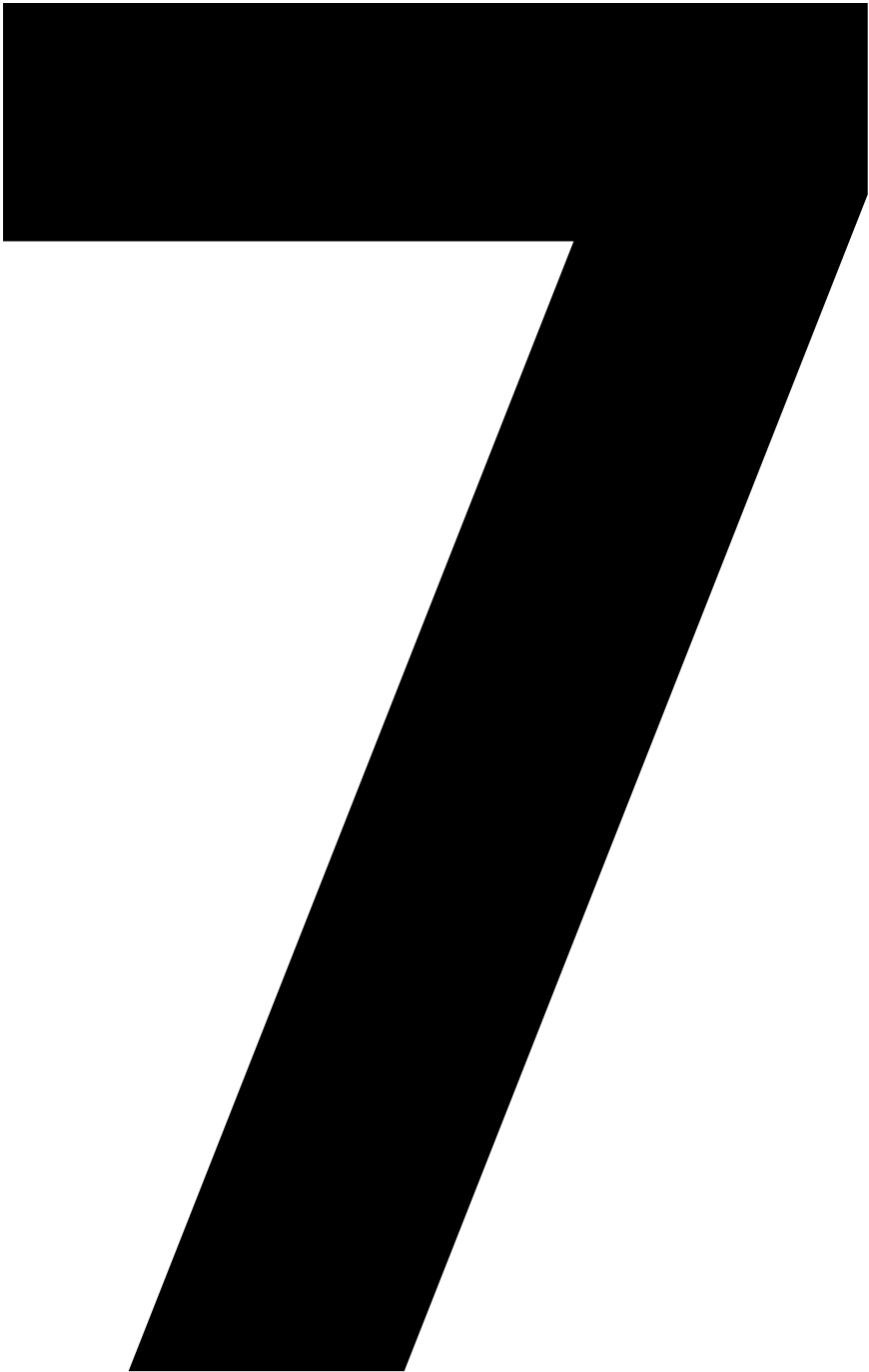






2











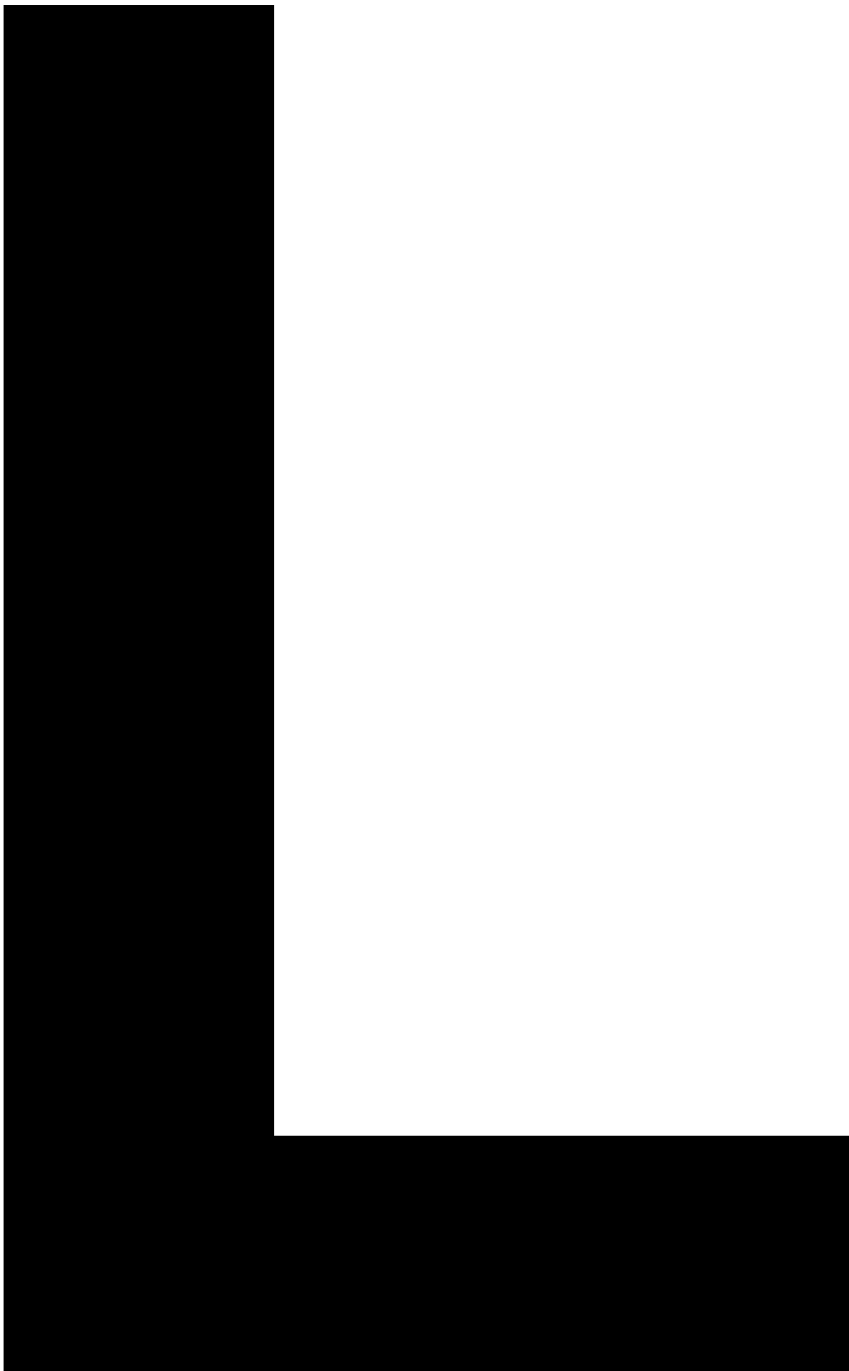


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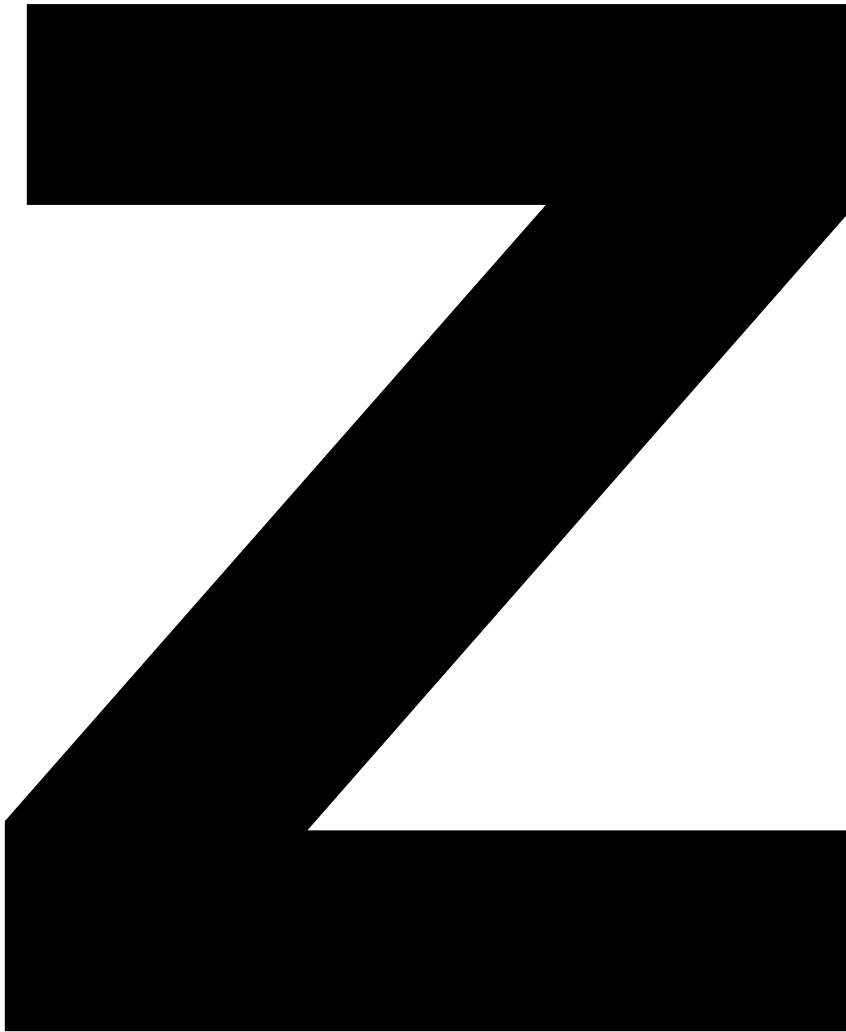


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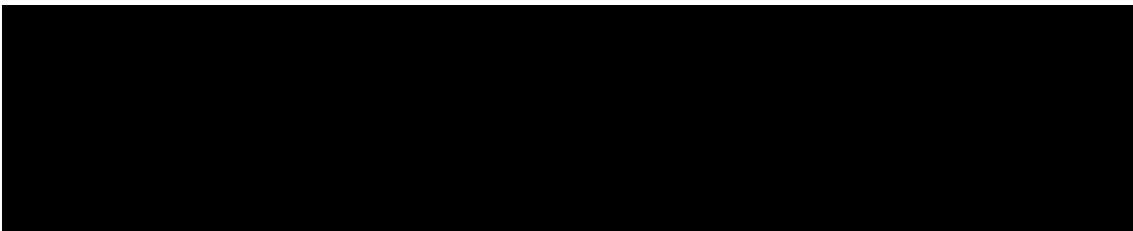


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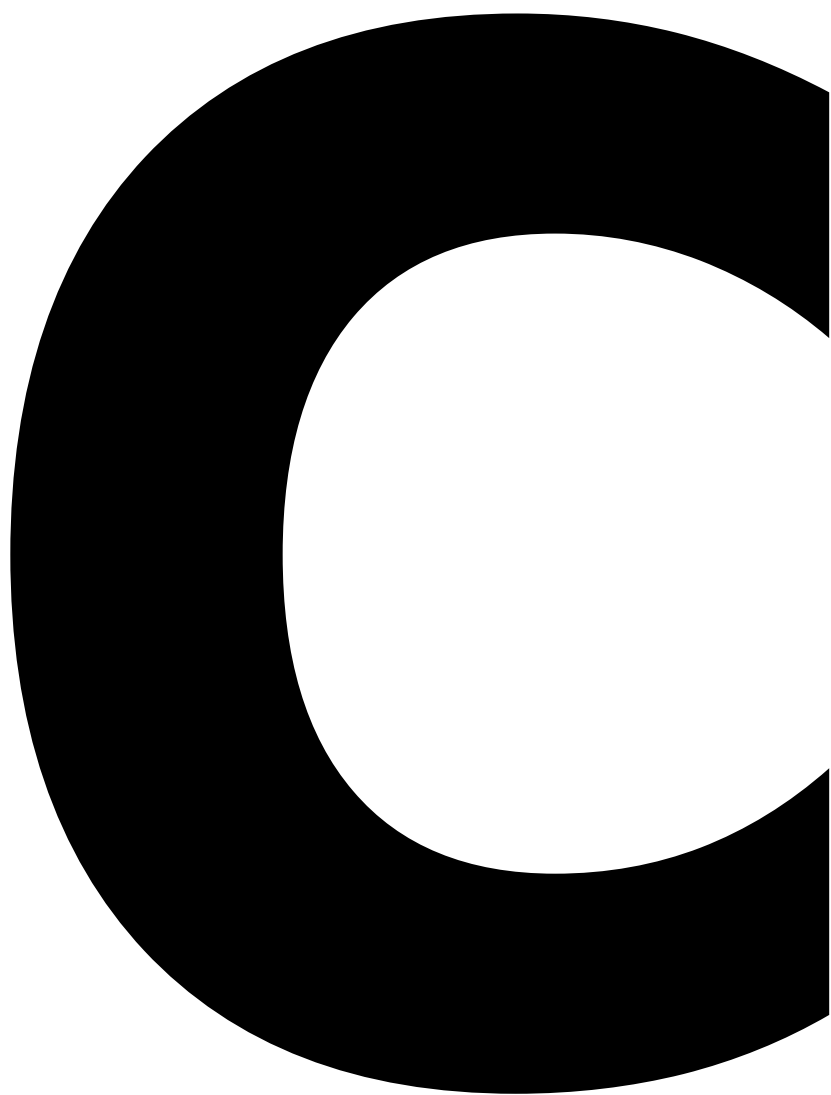






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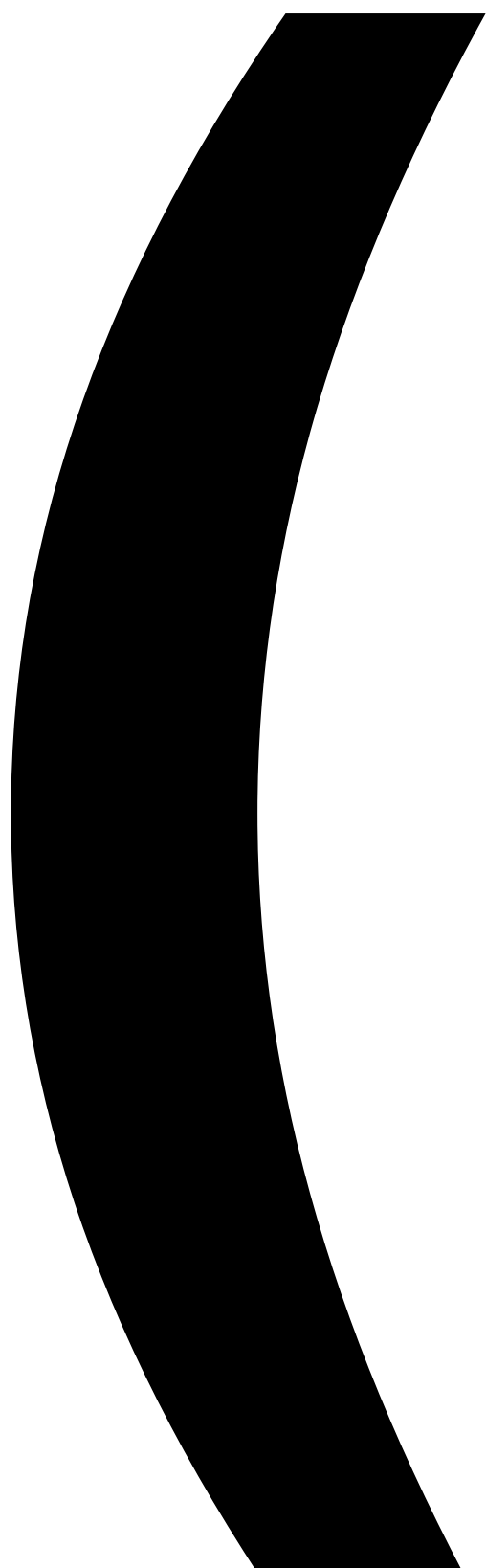


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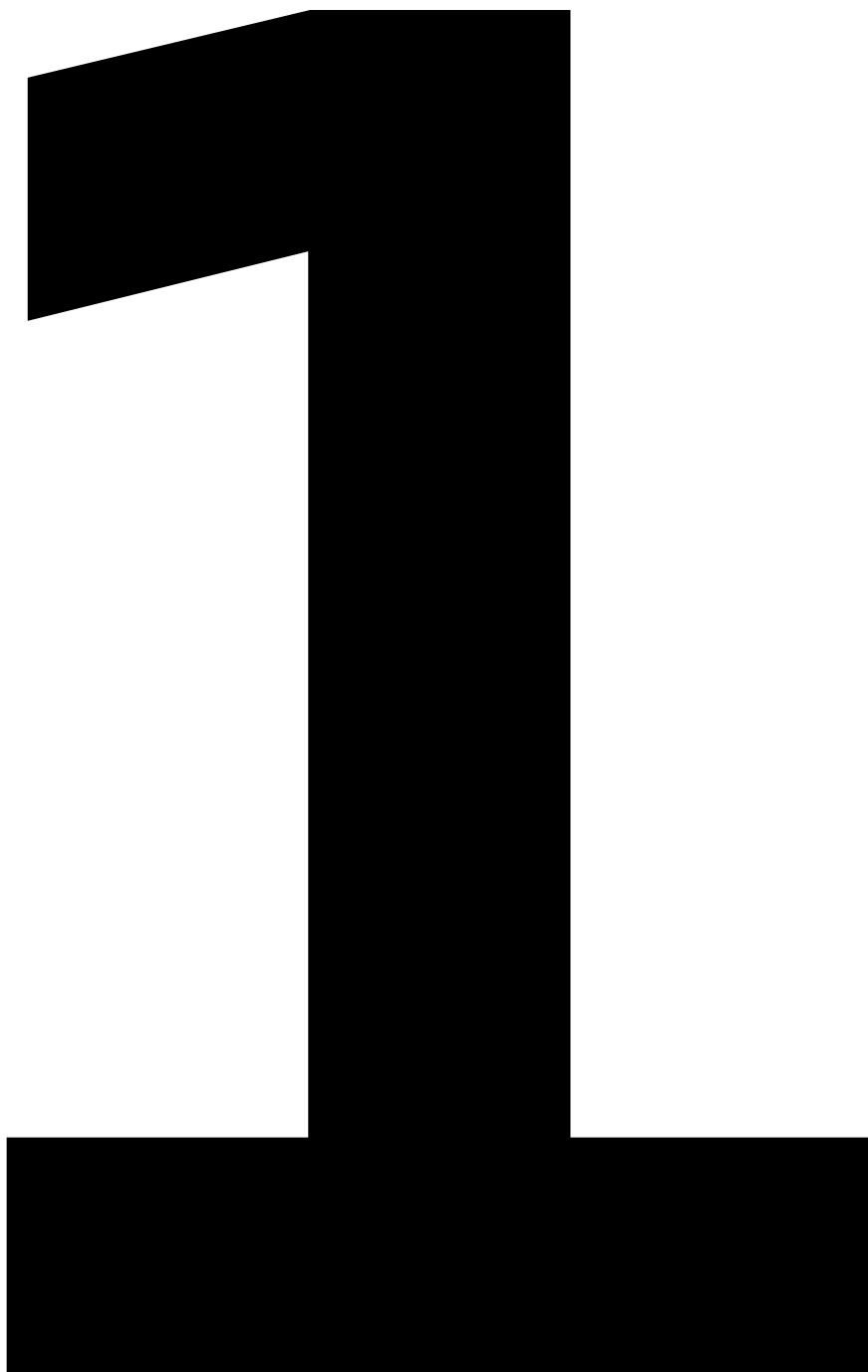
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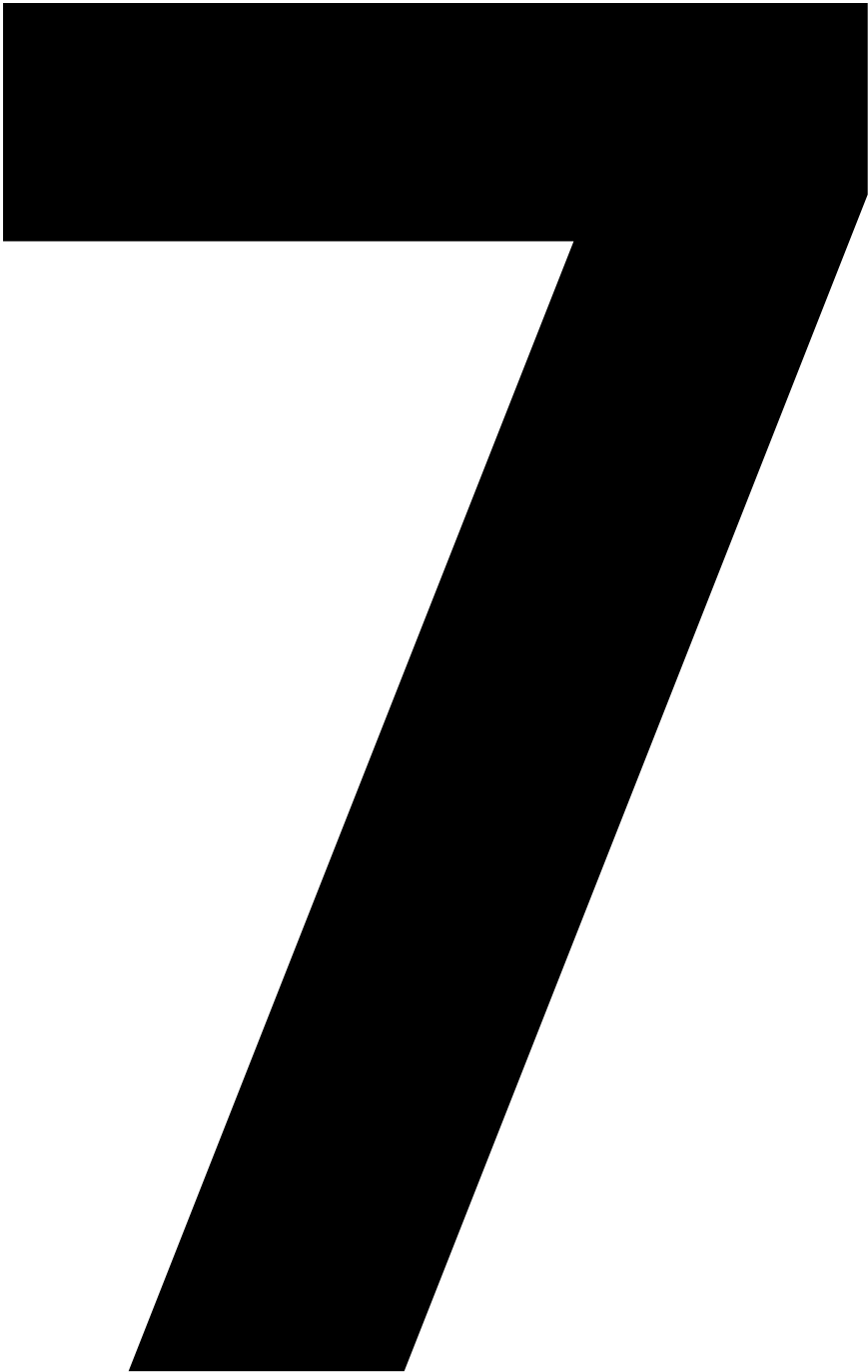


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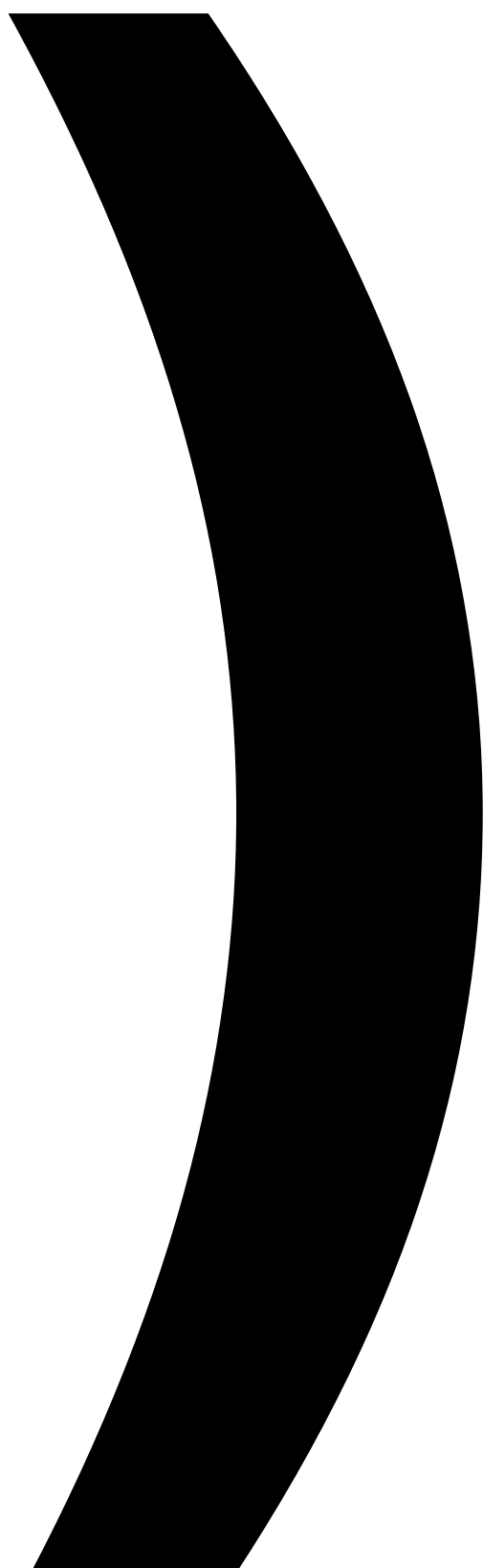
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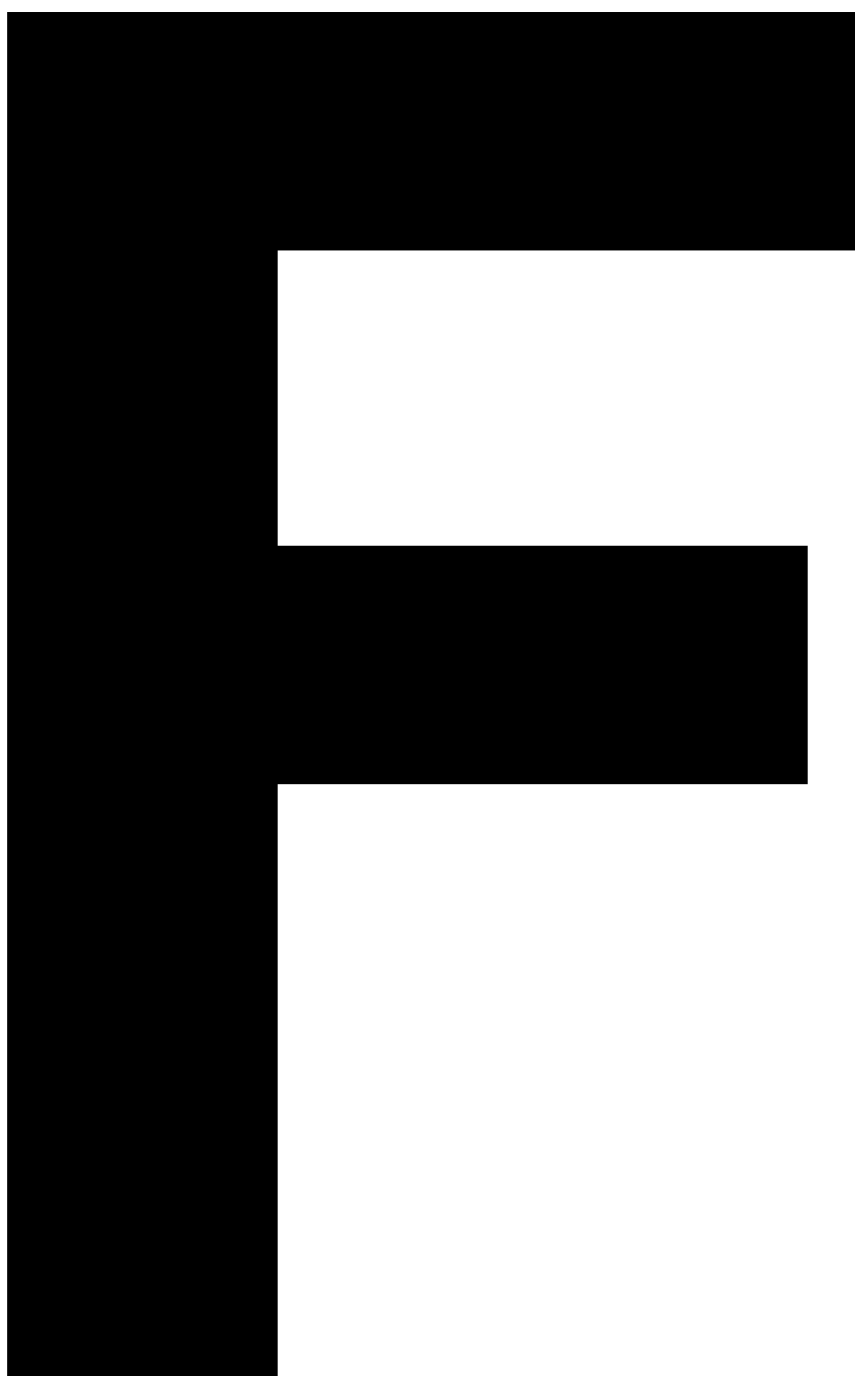
4













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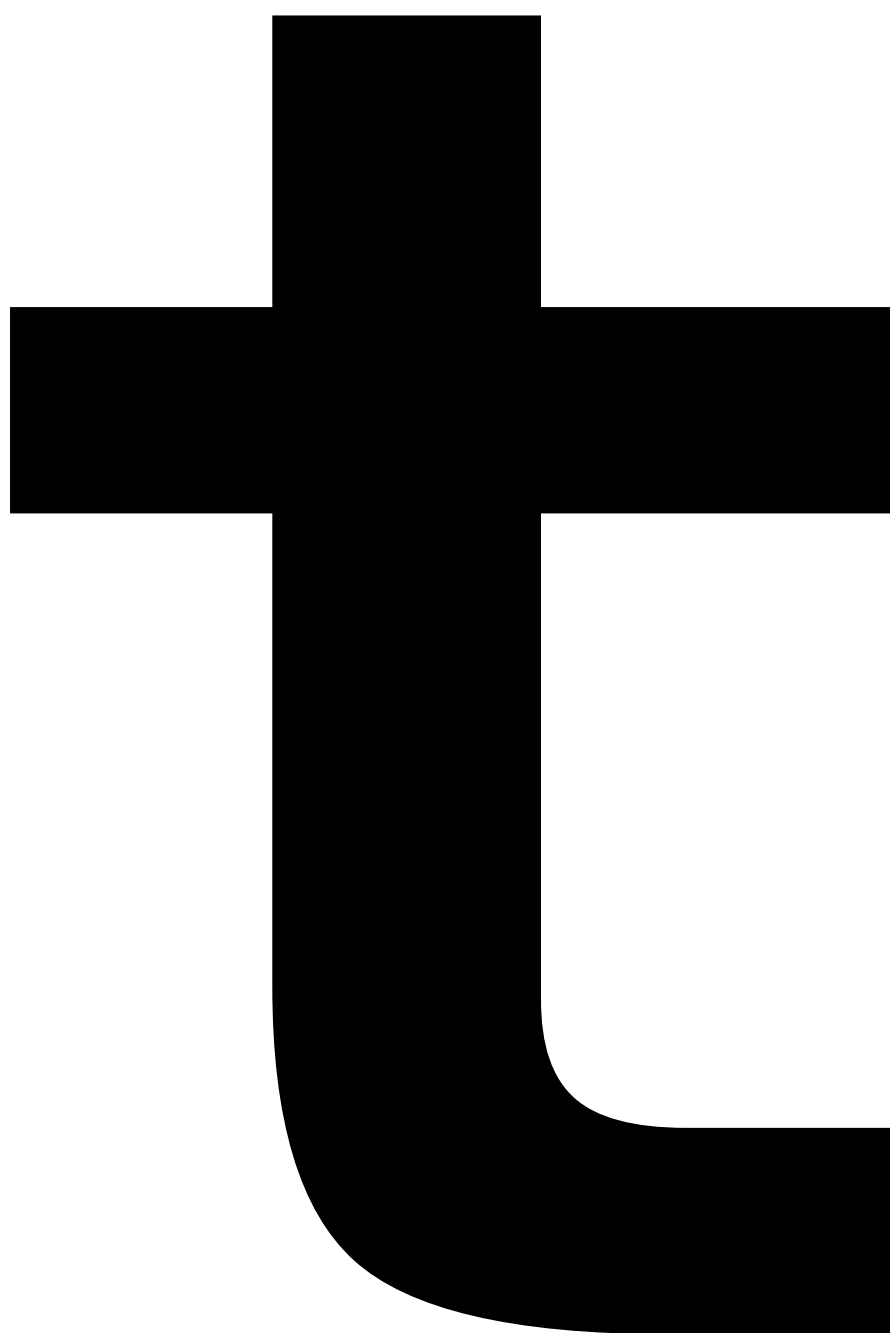


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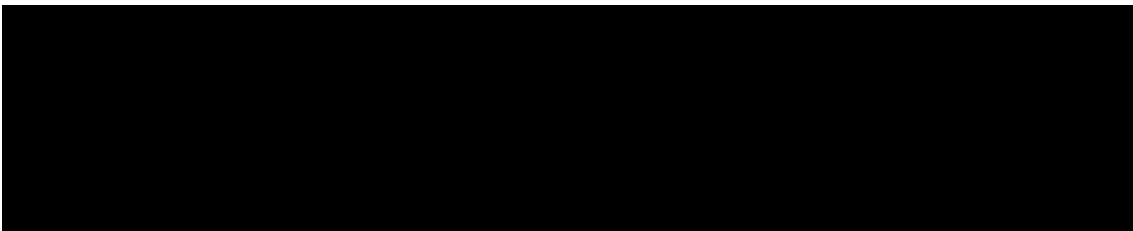


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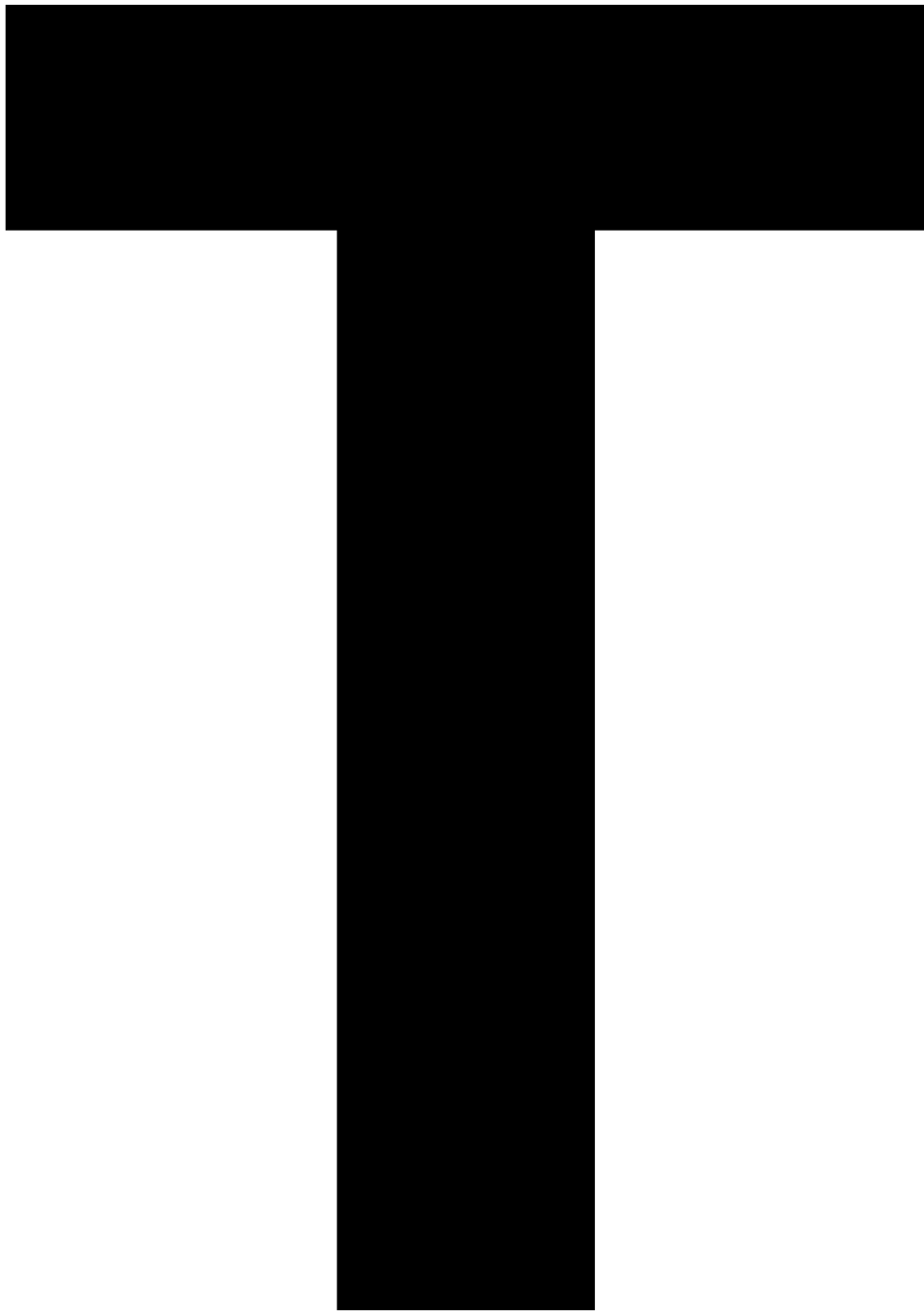


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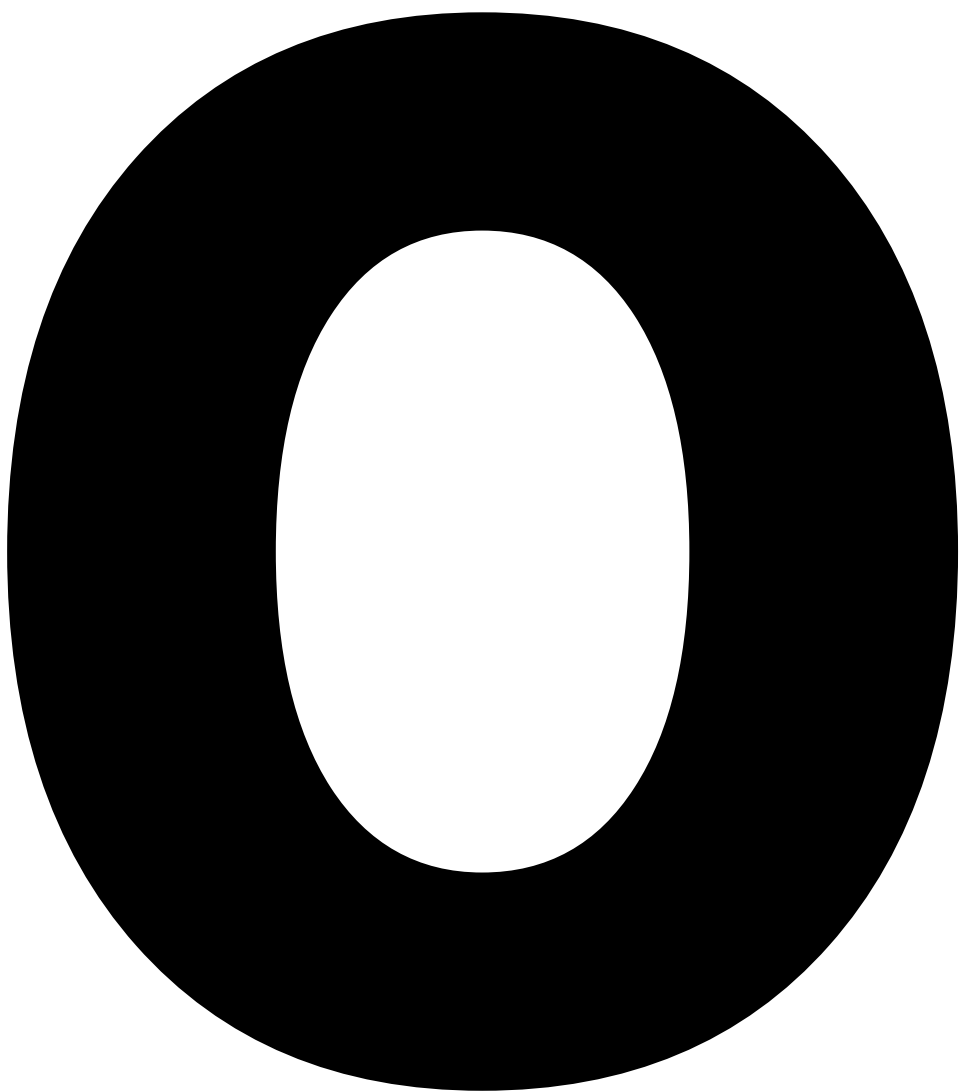


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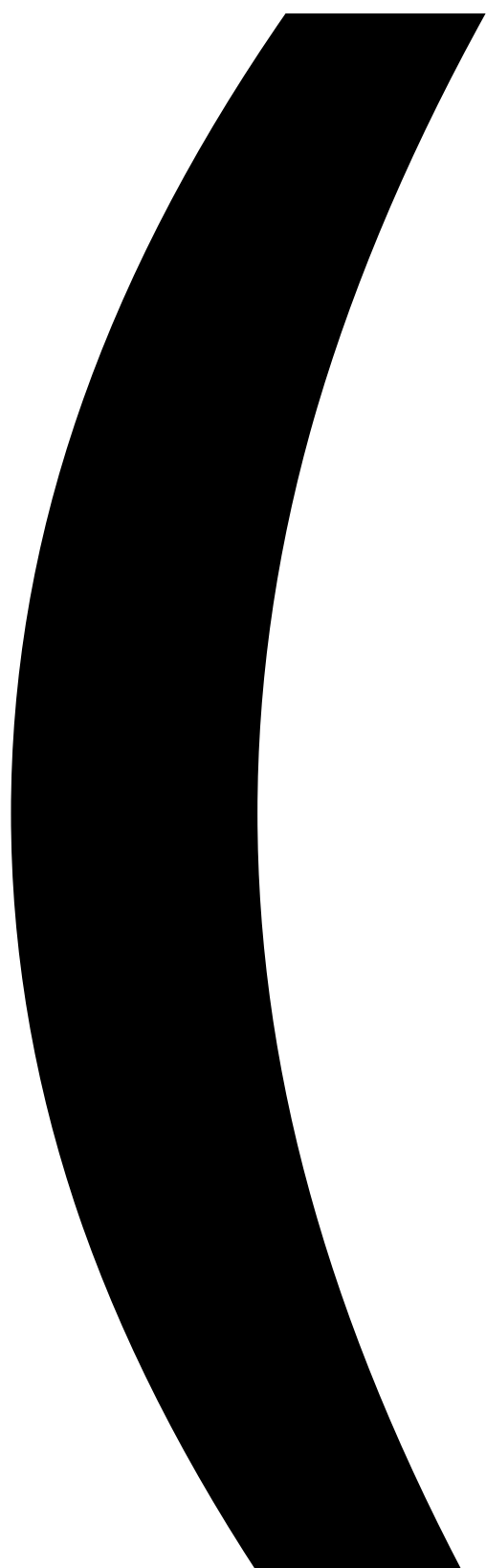






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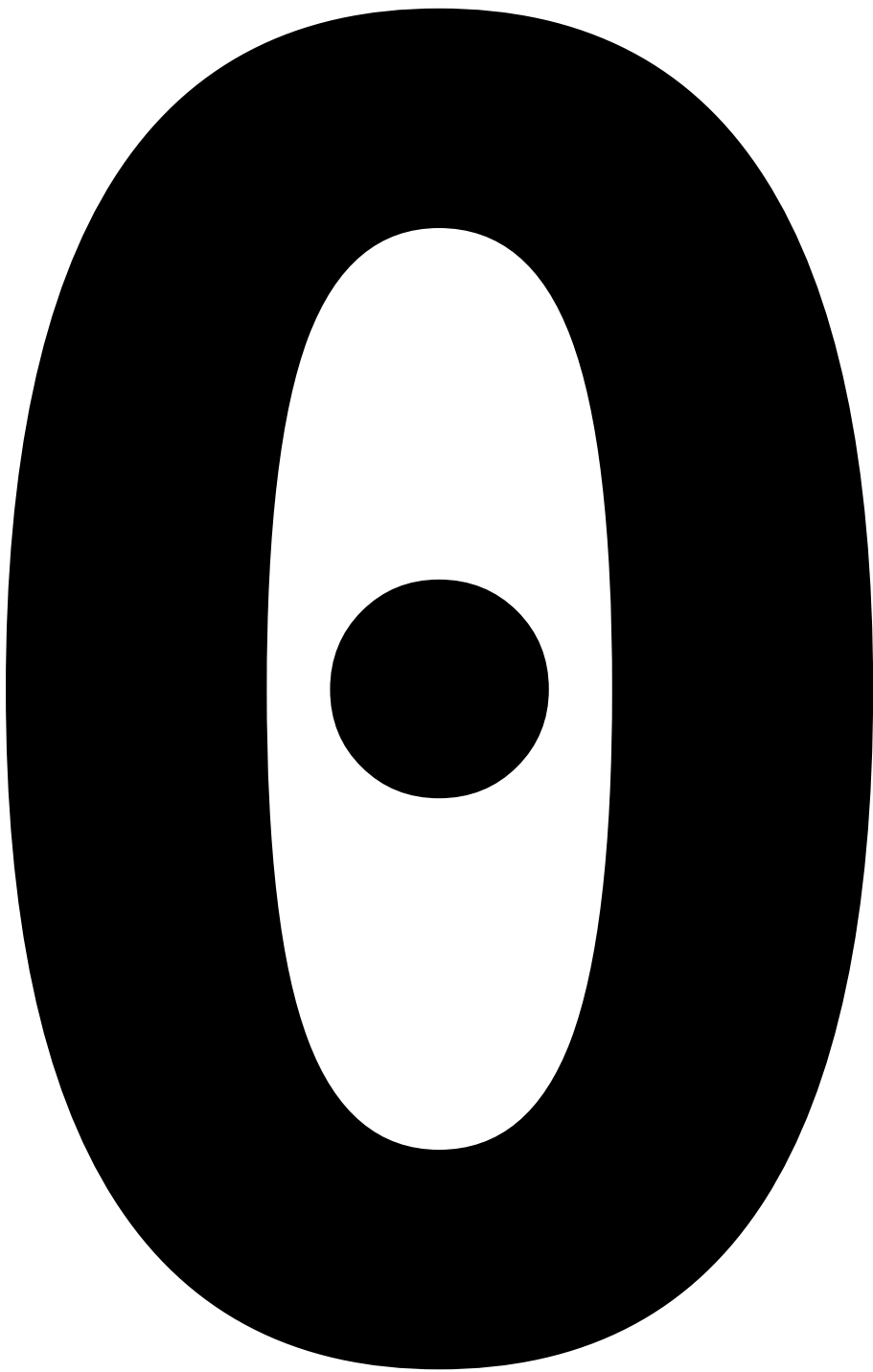
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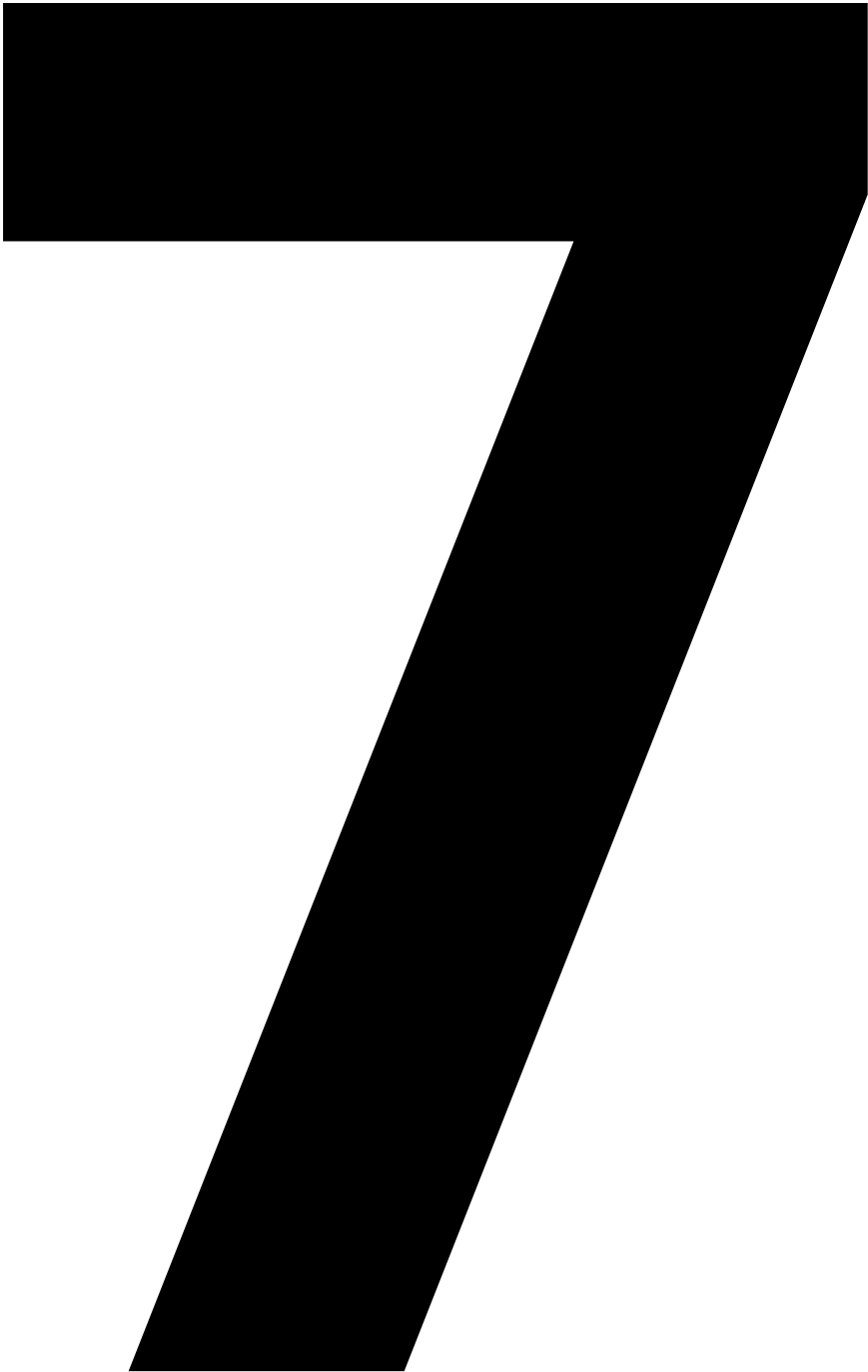




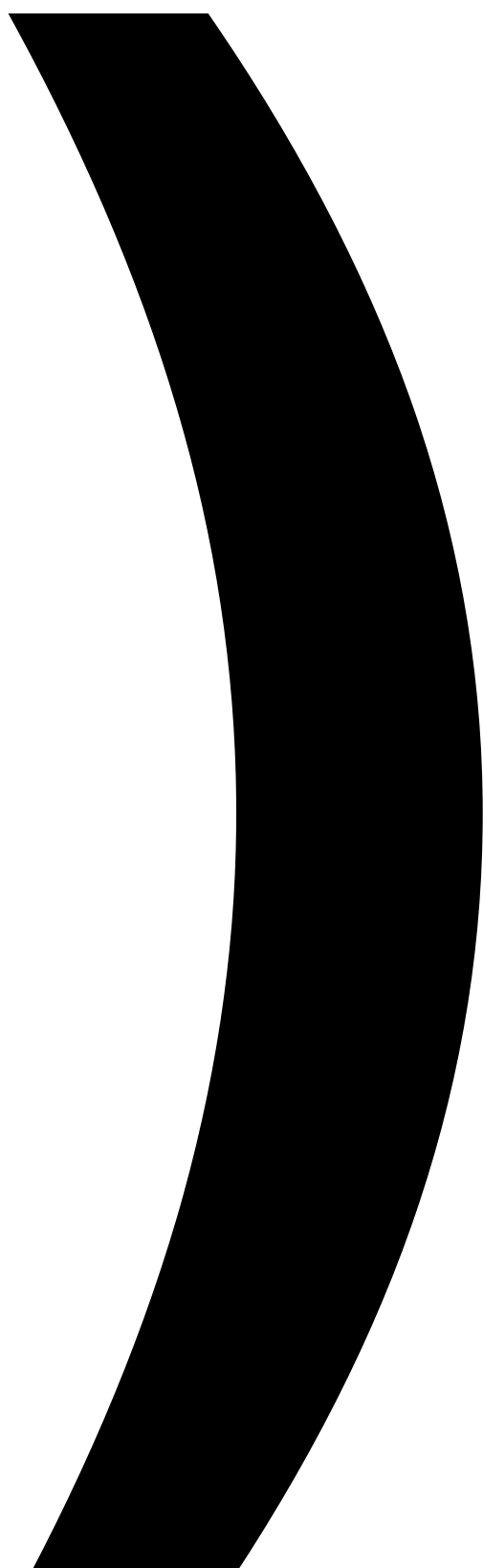




















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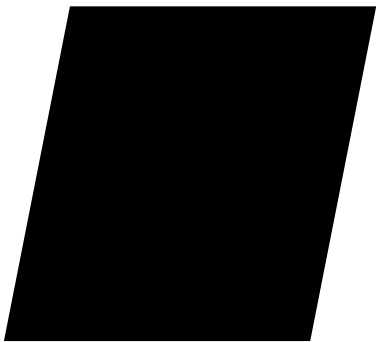
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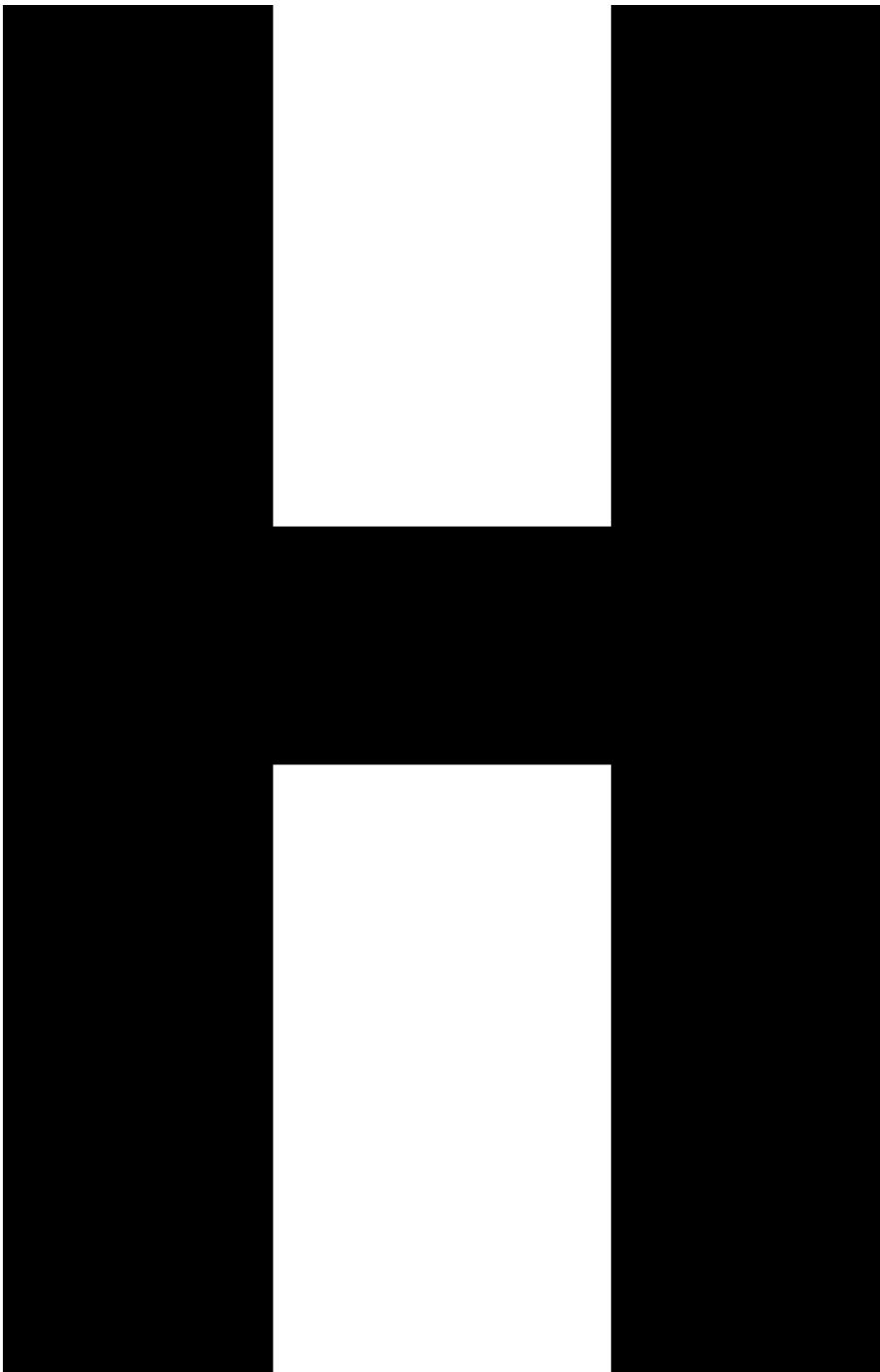
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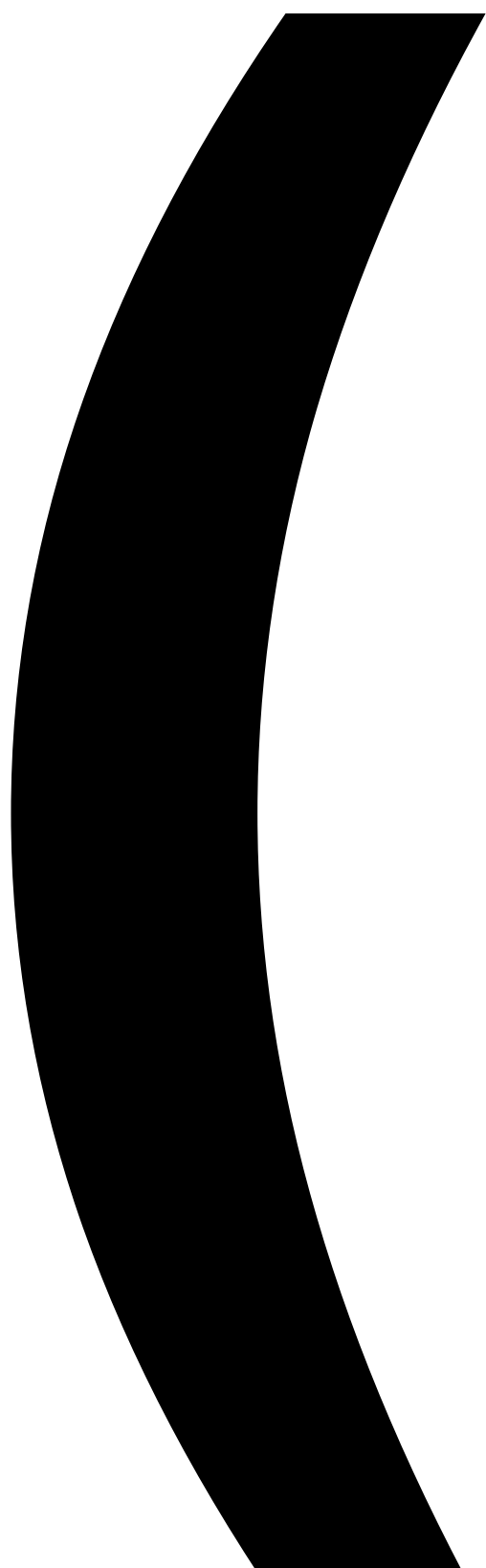




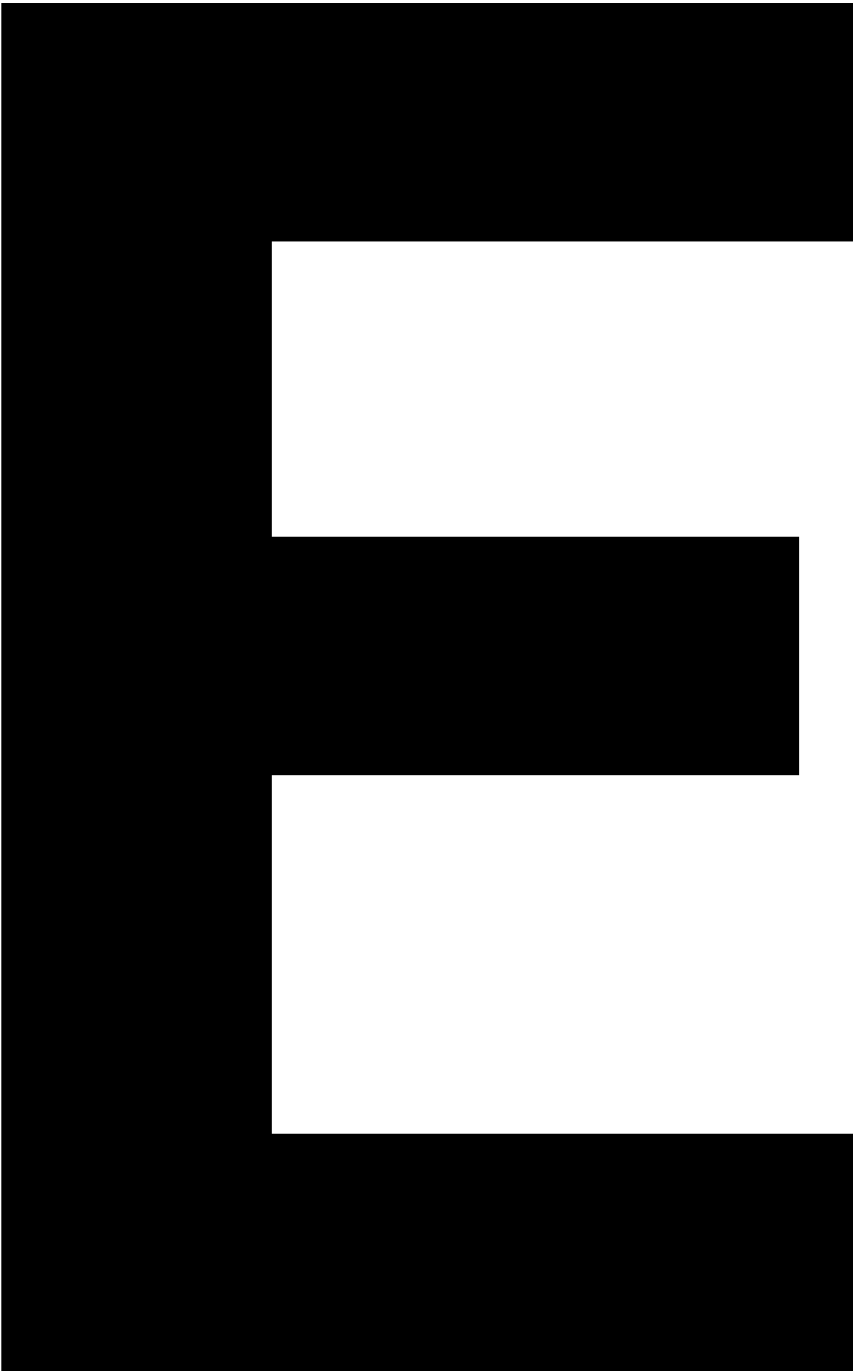














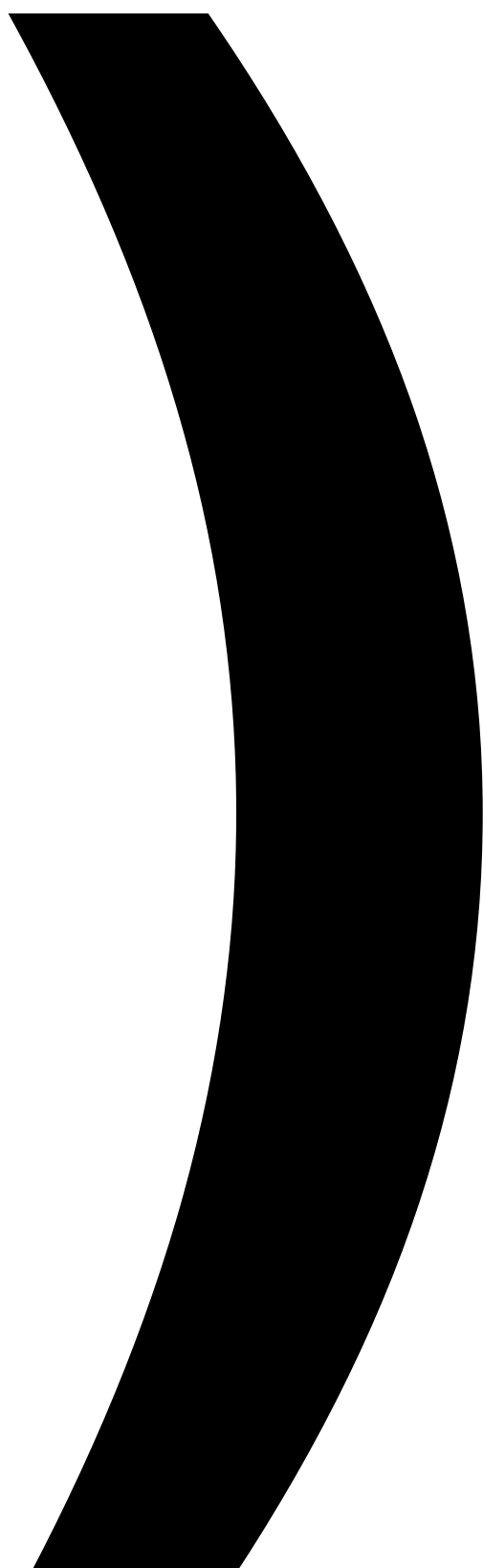


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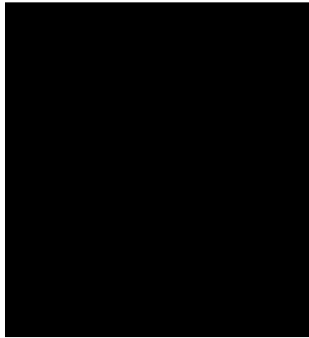
















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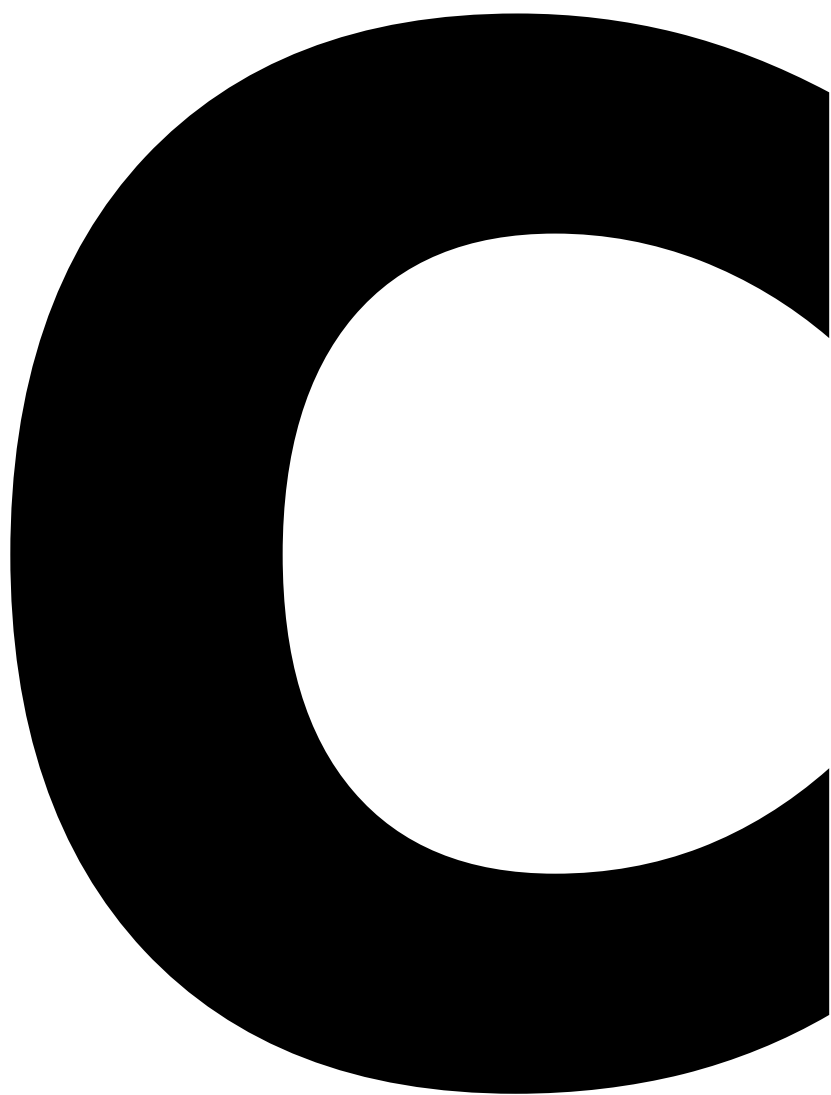














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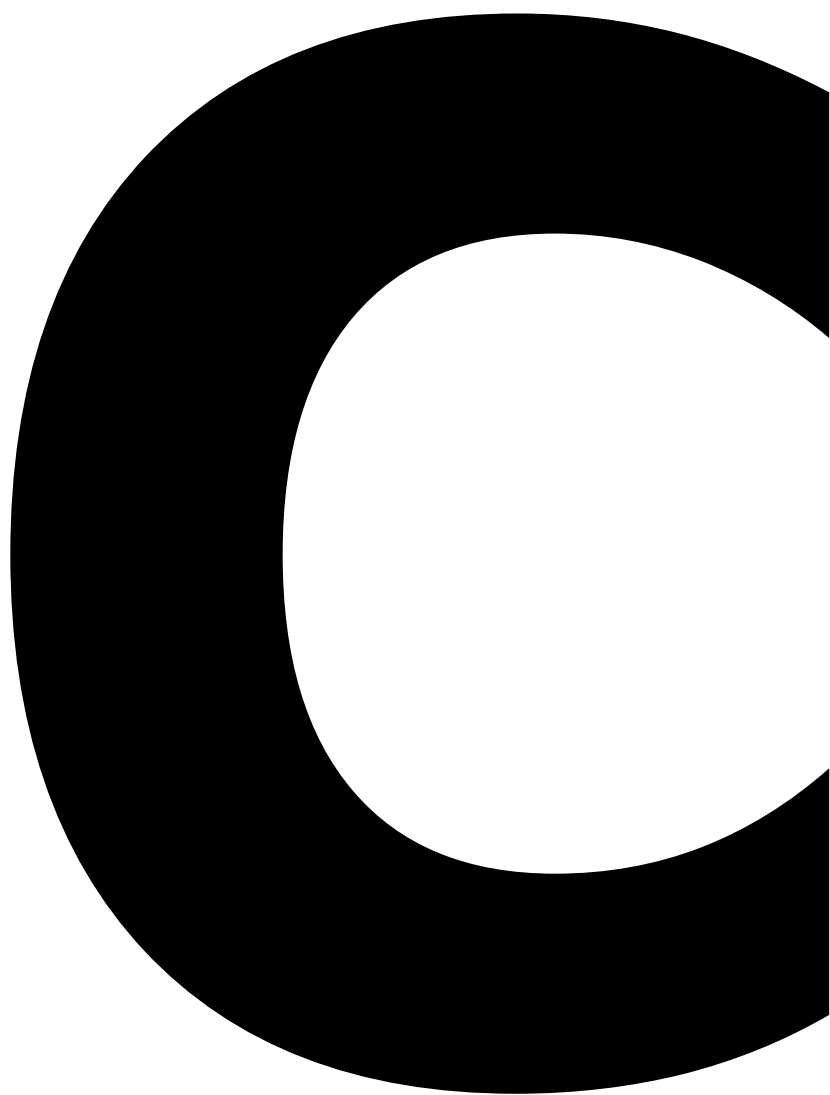


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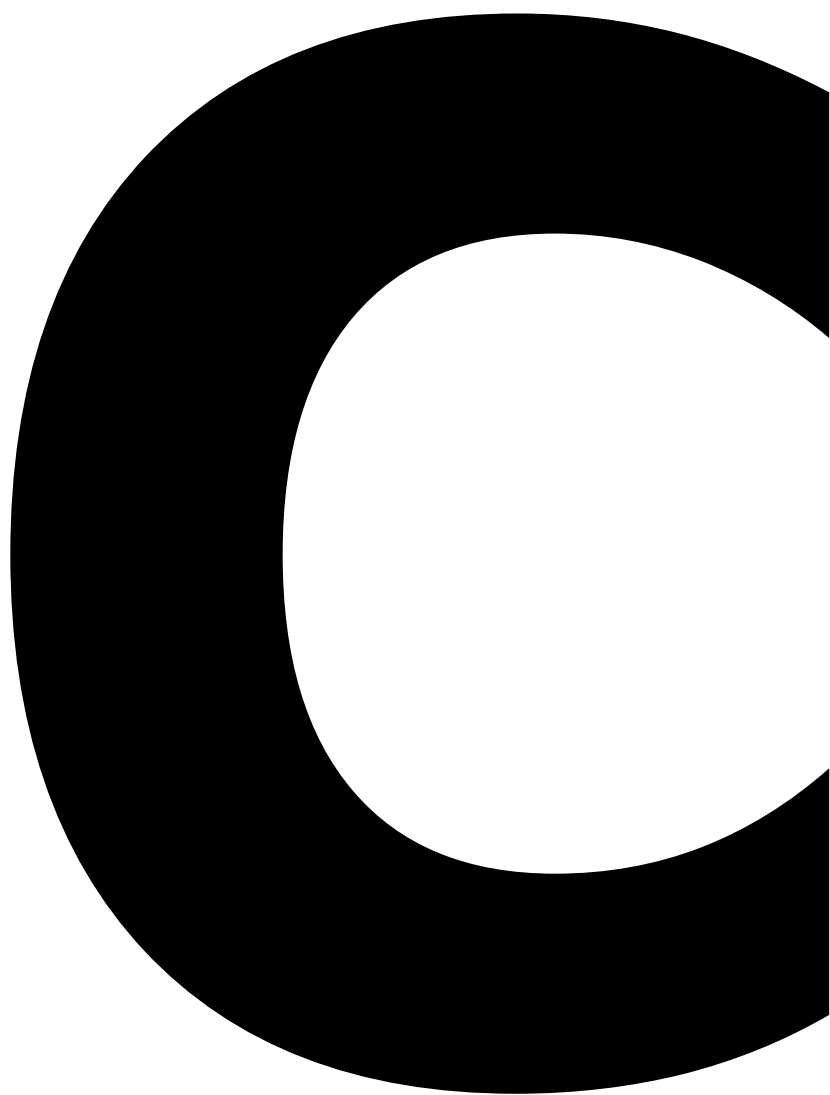














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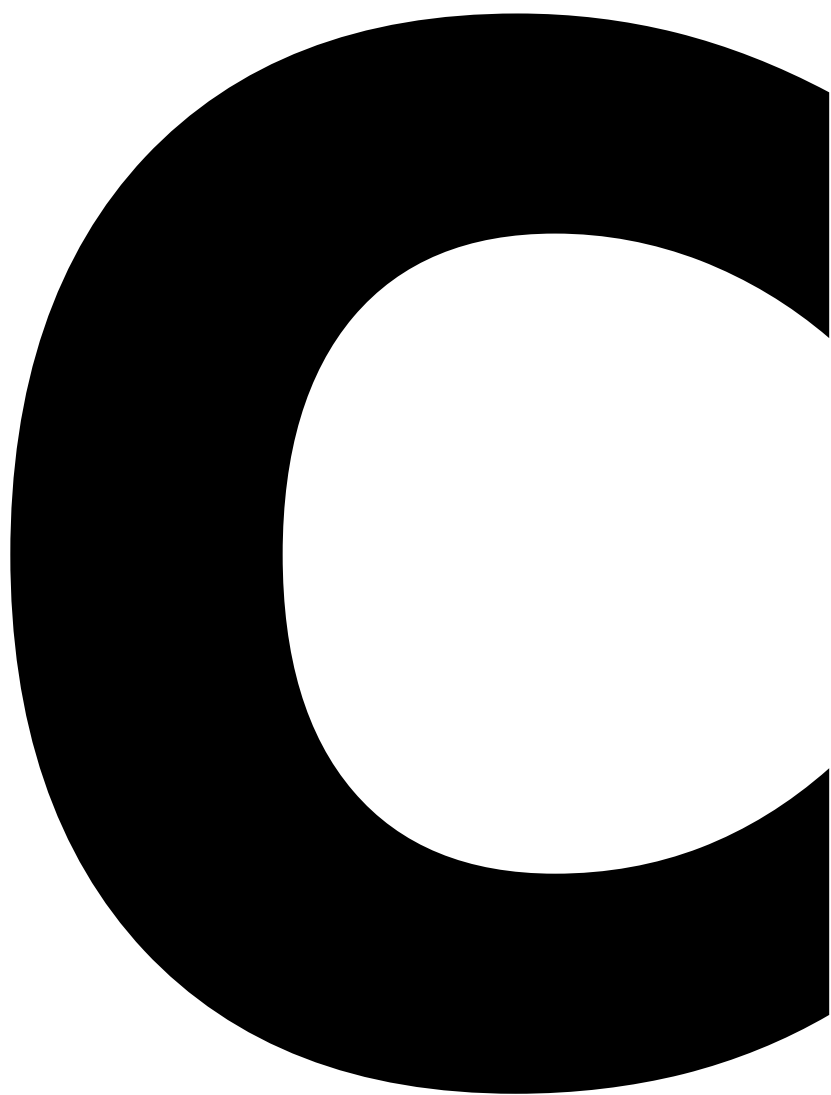
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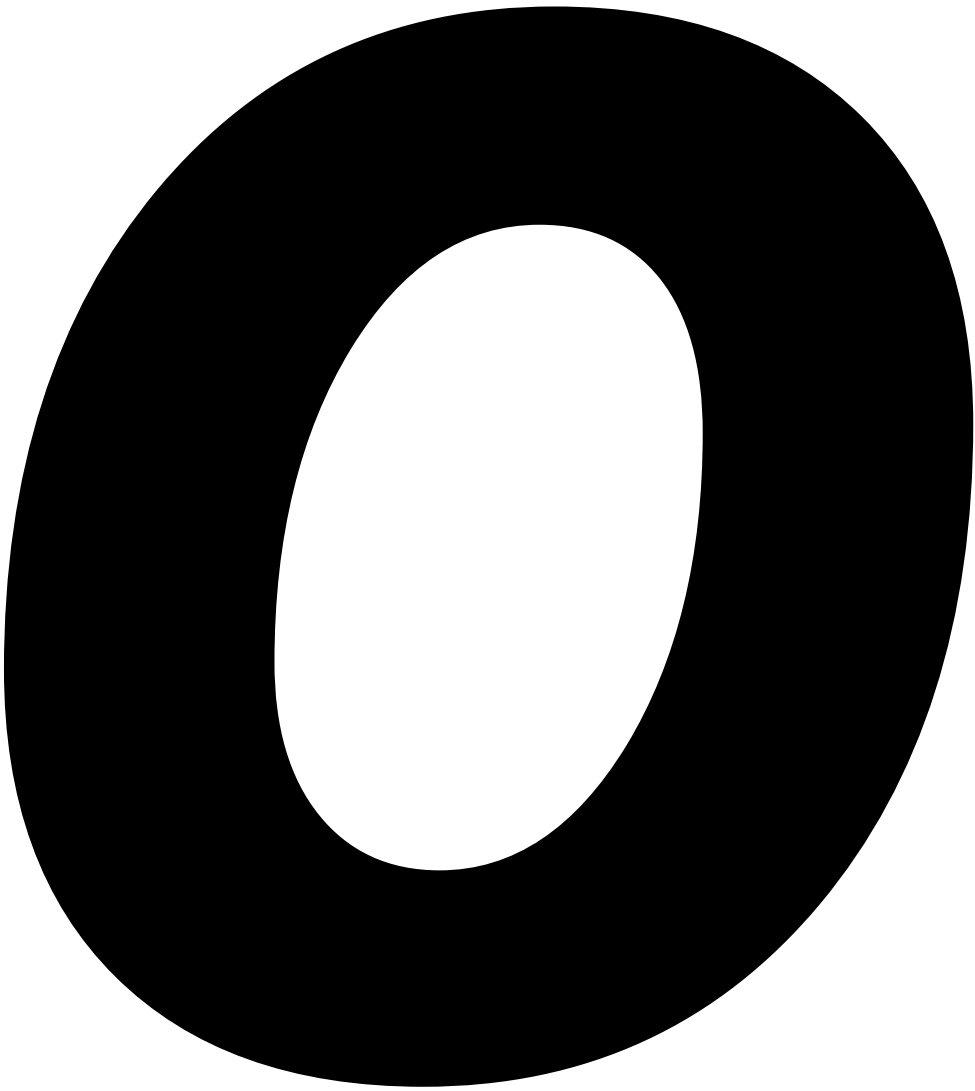


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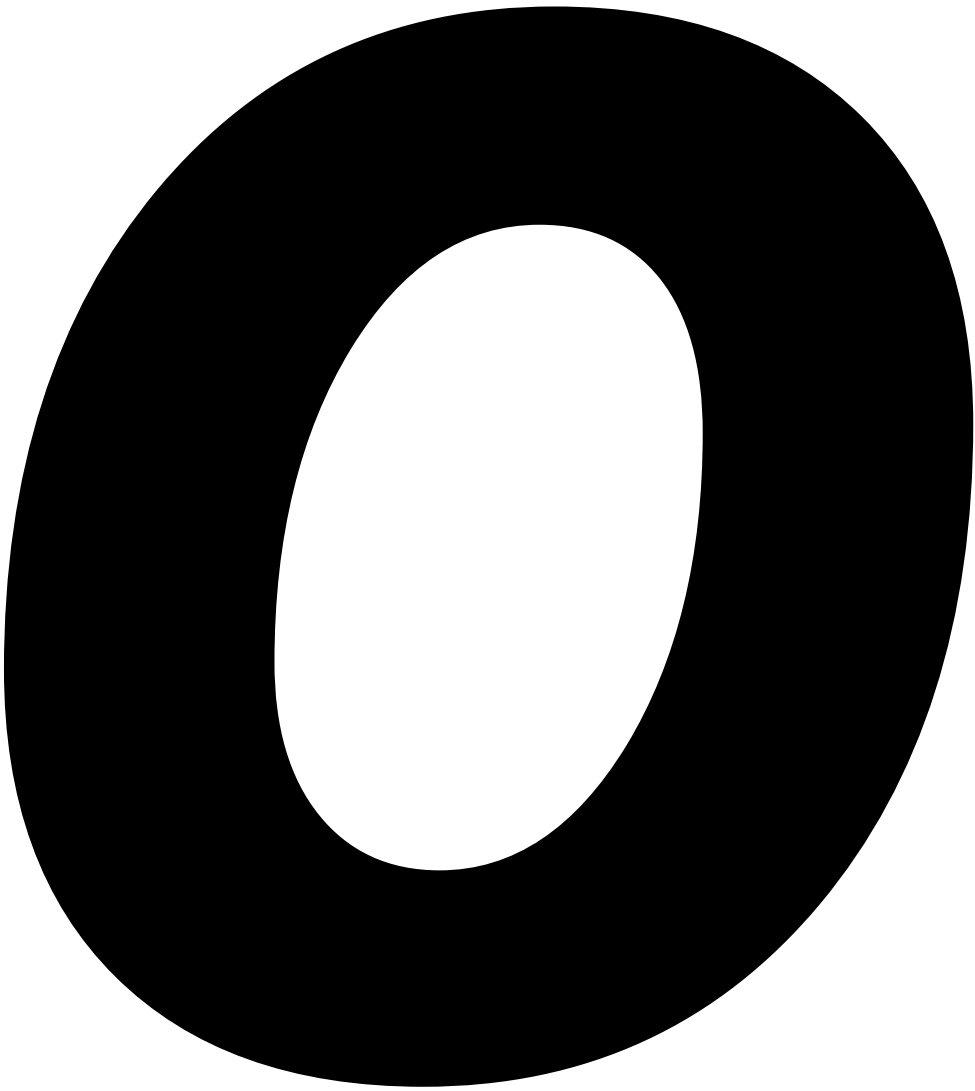


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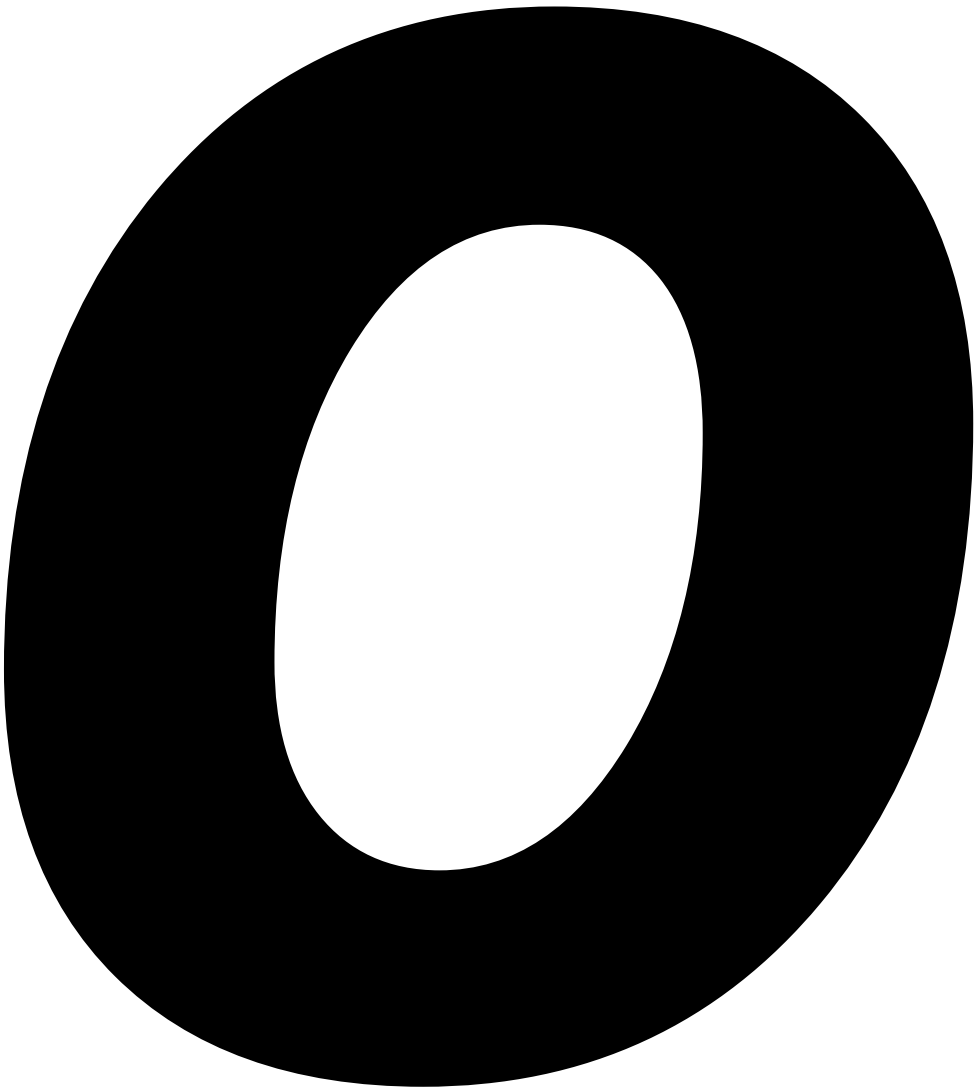
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**I**



**C**



***a***



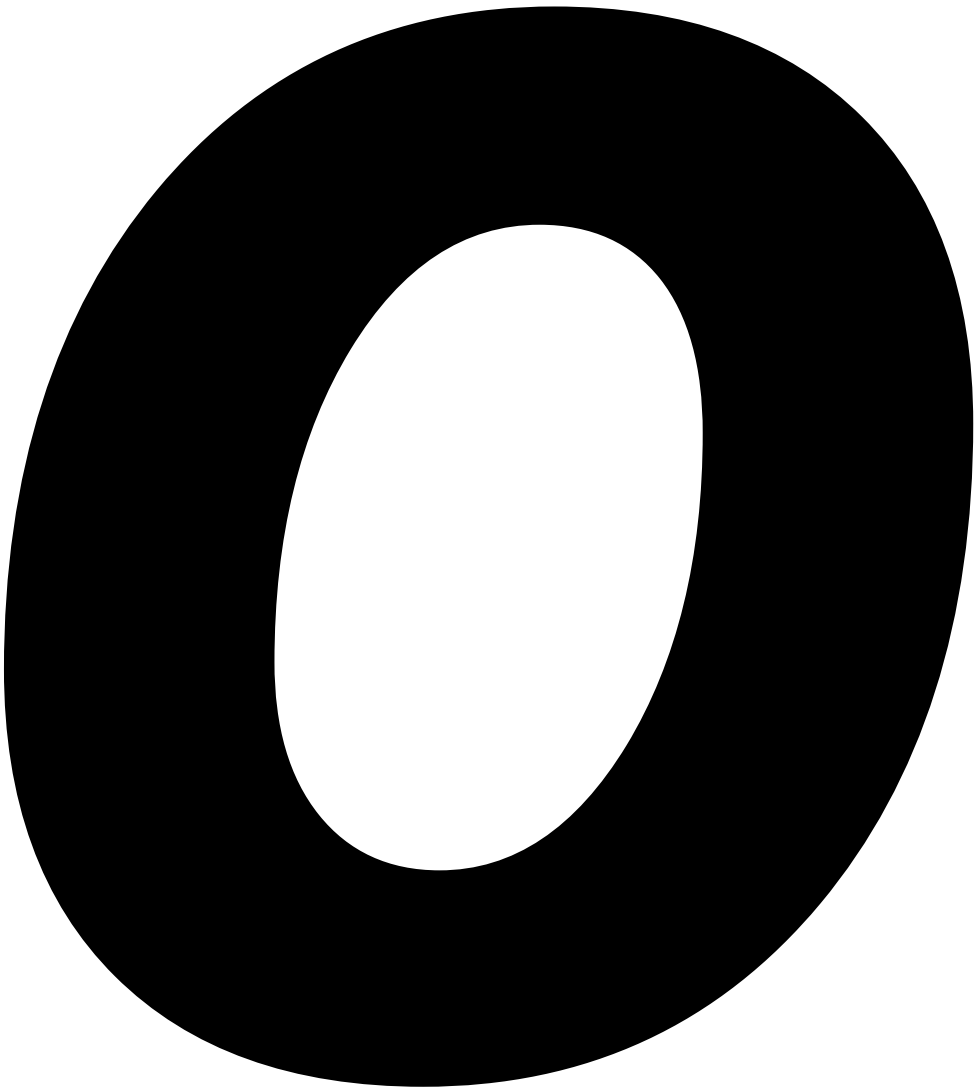


***J***



**M**



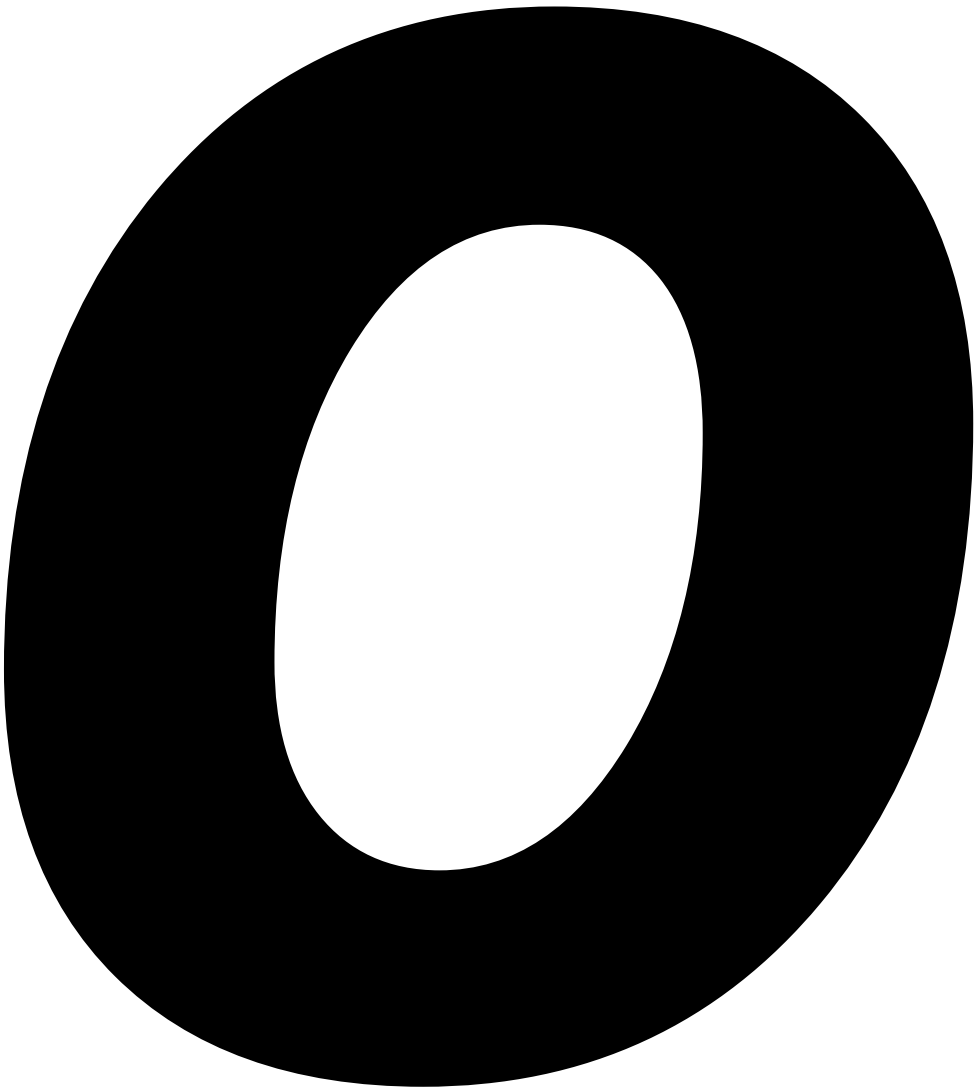




***n***









**g**



**r**



***a***





**po**



***n***



**5**



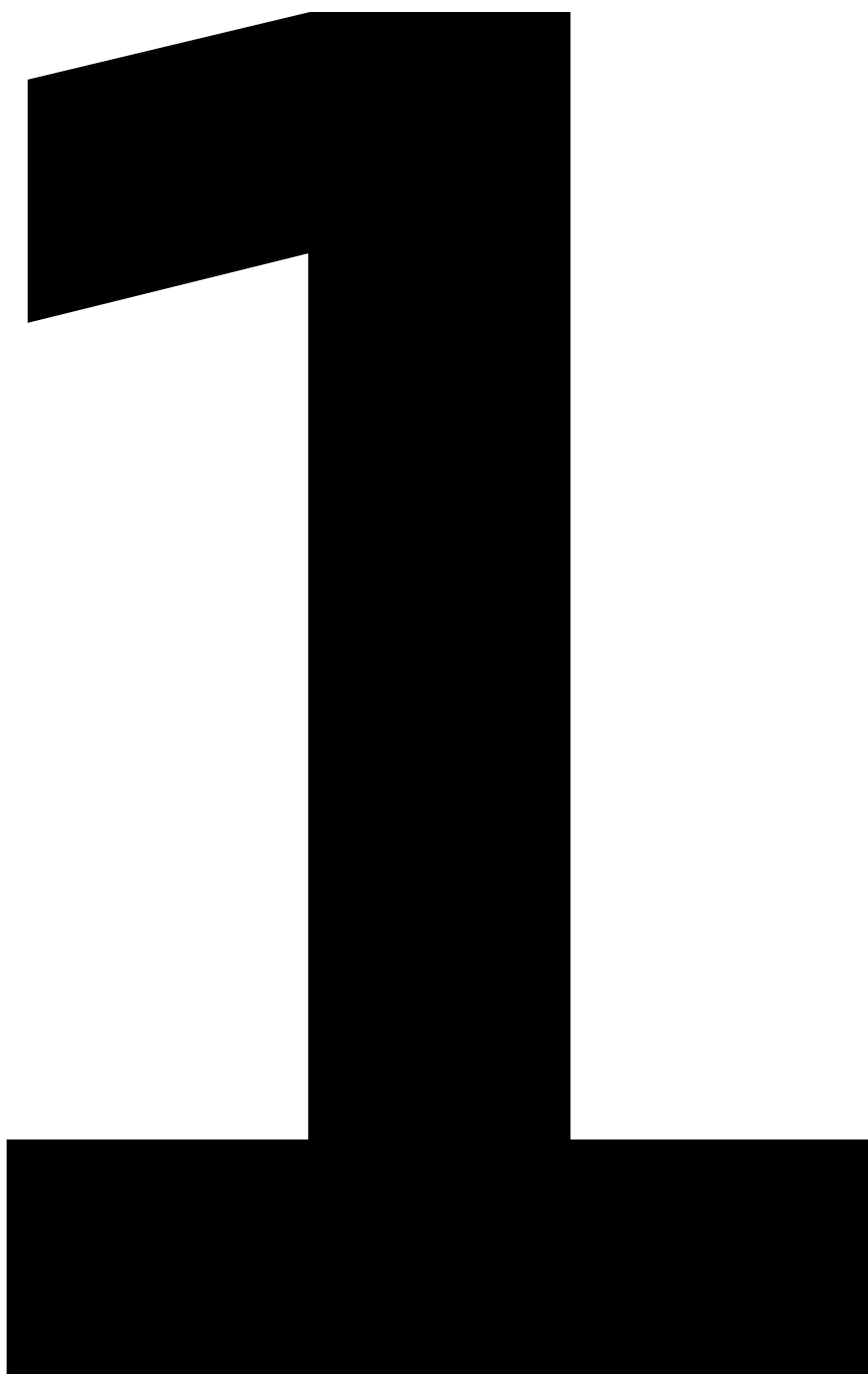
**5**













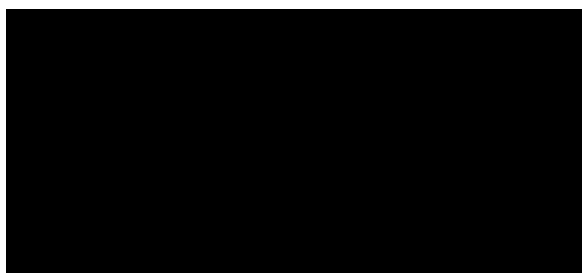
6



**5**









2



**3**



6

