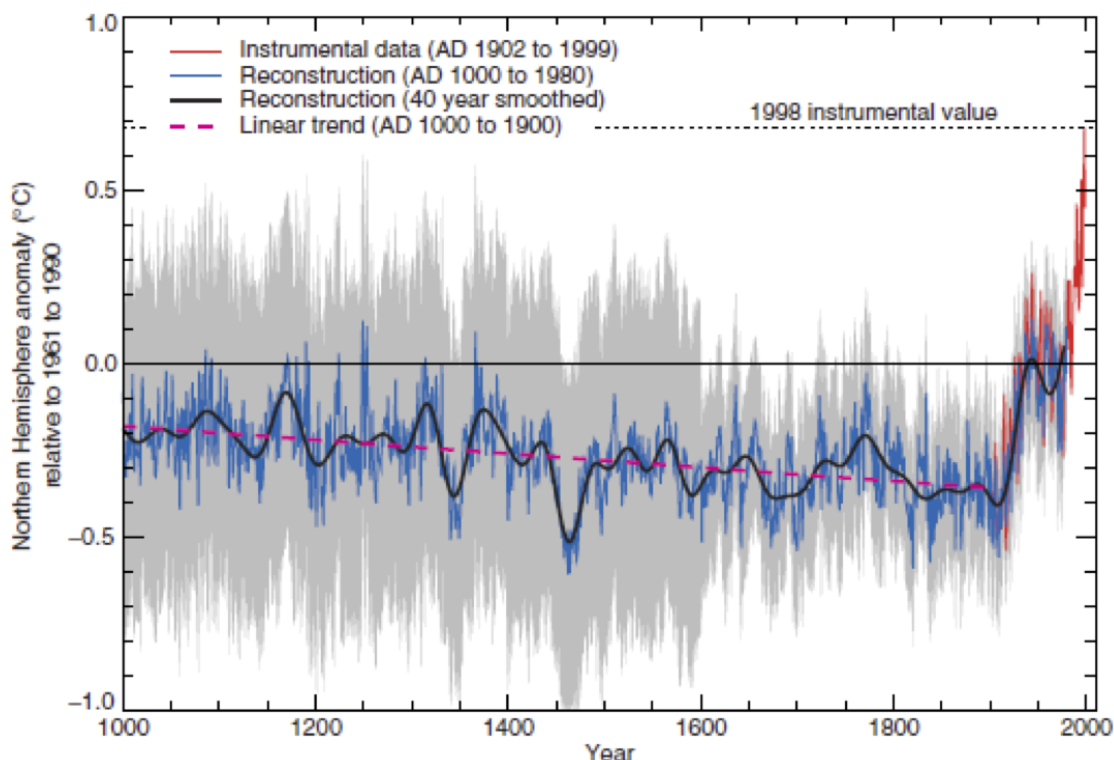


Die falschen Klimathesen des Professors Mojib Latif

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°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.

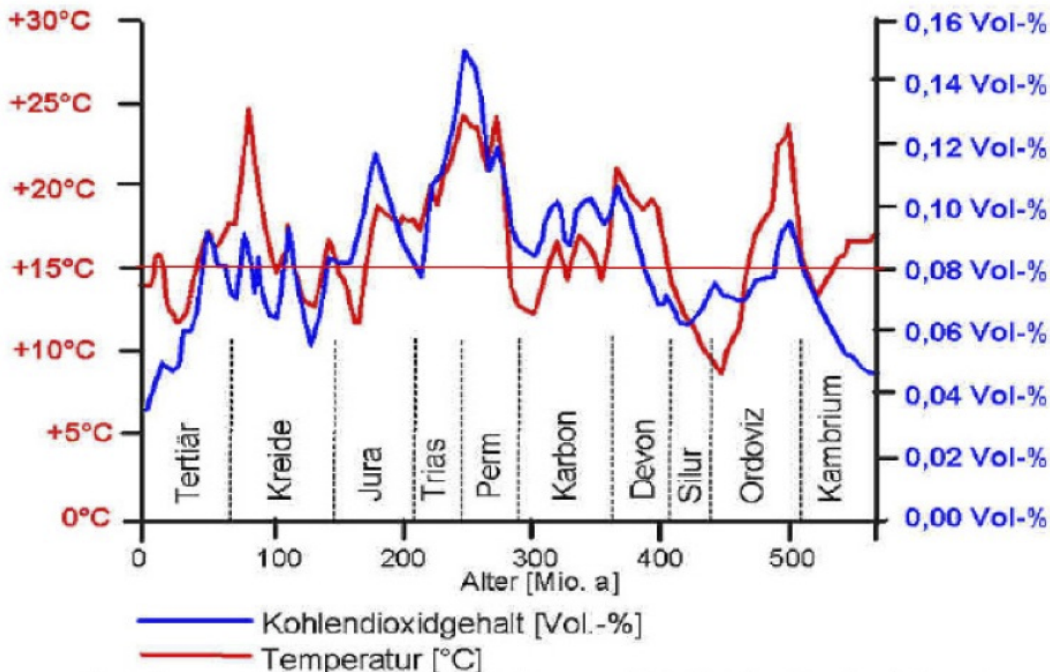
Falsch. Es gab zwar immer schon natürliche Klimaschwankungen. Aber wenn wir so weitermachen wie bisher, bekommen wir eine Klimaerwärmung, die es in der Geschichte der Menschheit noch nicht gegeben hat. Da es nicht eindeutig ist, was Prof. Latif (PL) meint, schauen wir uns sowohl die absolute Temperatur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

1. Absolute Temperatur

Der IPCC nimmt hierfür 288K oder 15°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.

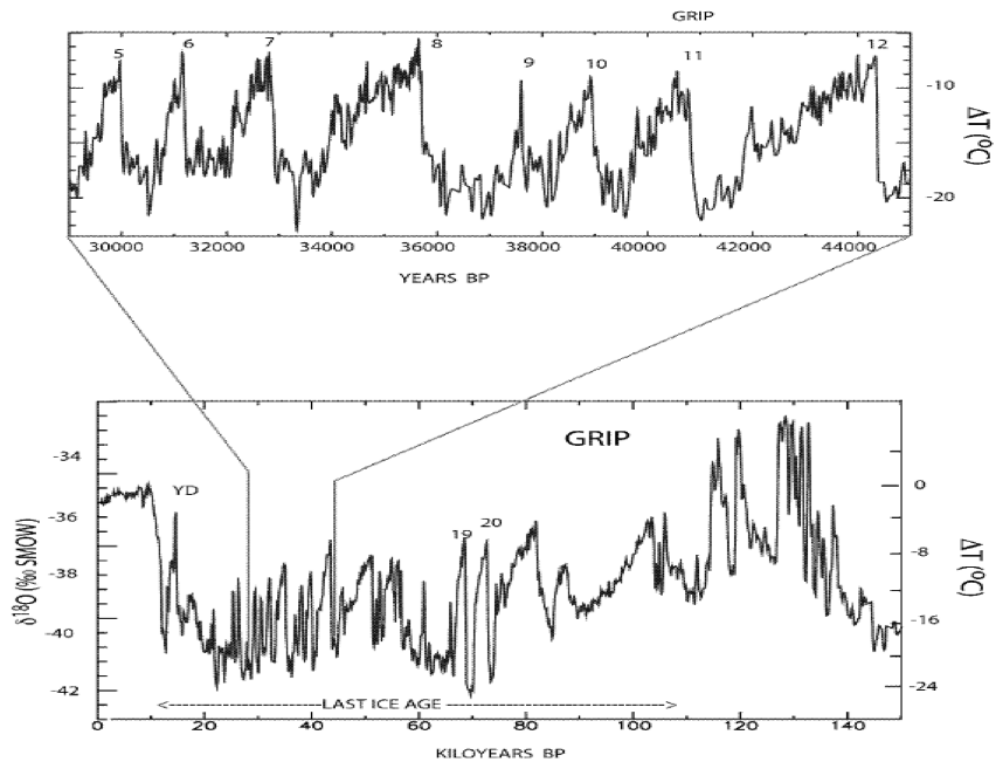
Um einen Vergleich zu ermöglichen, nehmen wir temporär trotzdem an, dass eine mittlere Temperatur gemessen werden kann. Die folgende Graphik zeigt die CO₂-Konzentration und die Temperatur im Verlauf der Erdgeschichte.



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 CO₂-Konzentration abnahm. Und drittens, wir leben in einer Zeit der minimalen CO₂-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 CO₂ 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.

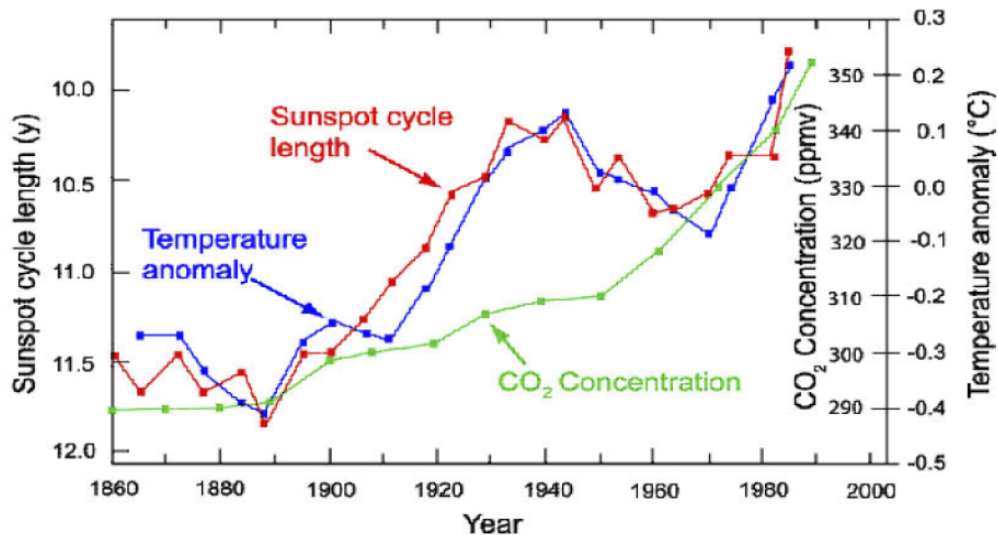
Falsch. Drei Viertel der Erwärmung ist vom Menschen gemacht, nur ein Viertel geht auf natürliche Ursachen zurück, insbesondere die Sonne. Aber der Sonneneinfluss passierte in der ersten Hälfte des 20. Jahrhunderts.

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.

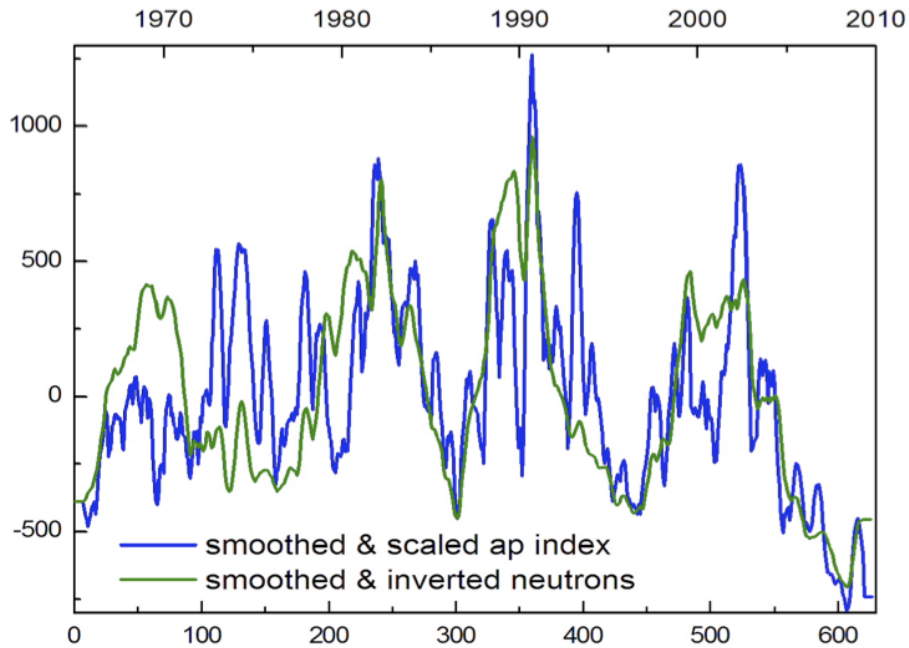
Die Verteilung der eingestrahnten und abgestrahlten Energie auf der Erde und die dadurch bewirkten lokalen Temperaturen hängen auch von anderen Größen ab.

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 CO₂-Konzentration.

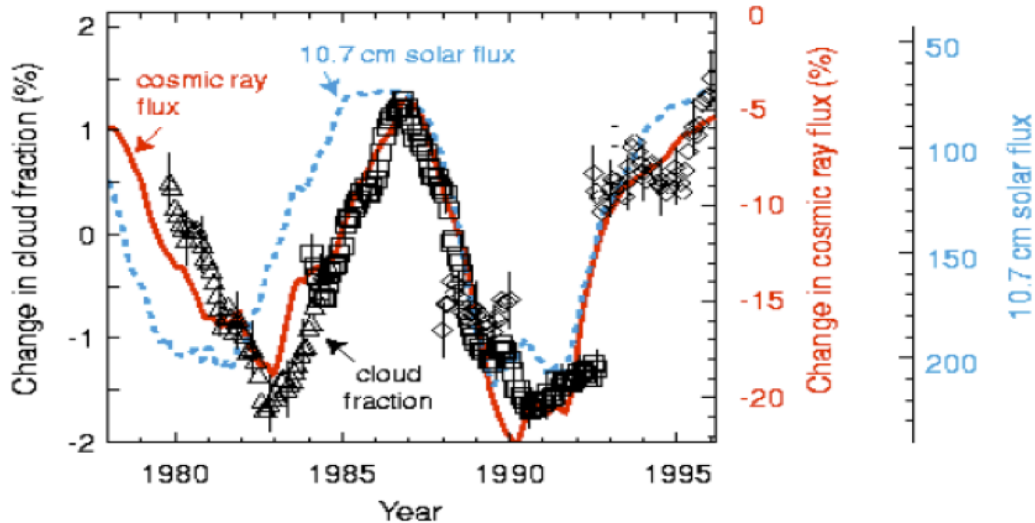


Wenn es nach PL eine Korrelation zwischen der Sonnenaktivität und der Temperaturanomalie vor 1950 gab, dann ist es anhand der Graphik schwer verständlich, warum dies danach nicht mehr gelten soll. Richtig würde PL liegen, wenn er die Korrelation zwischen der Temperaturanomalie und der CO₂-Konzentration 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**

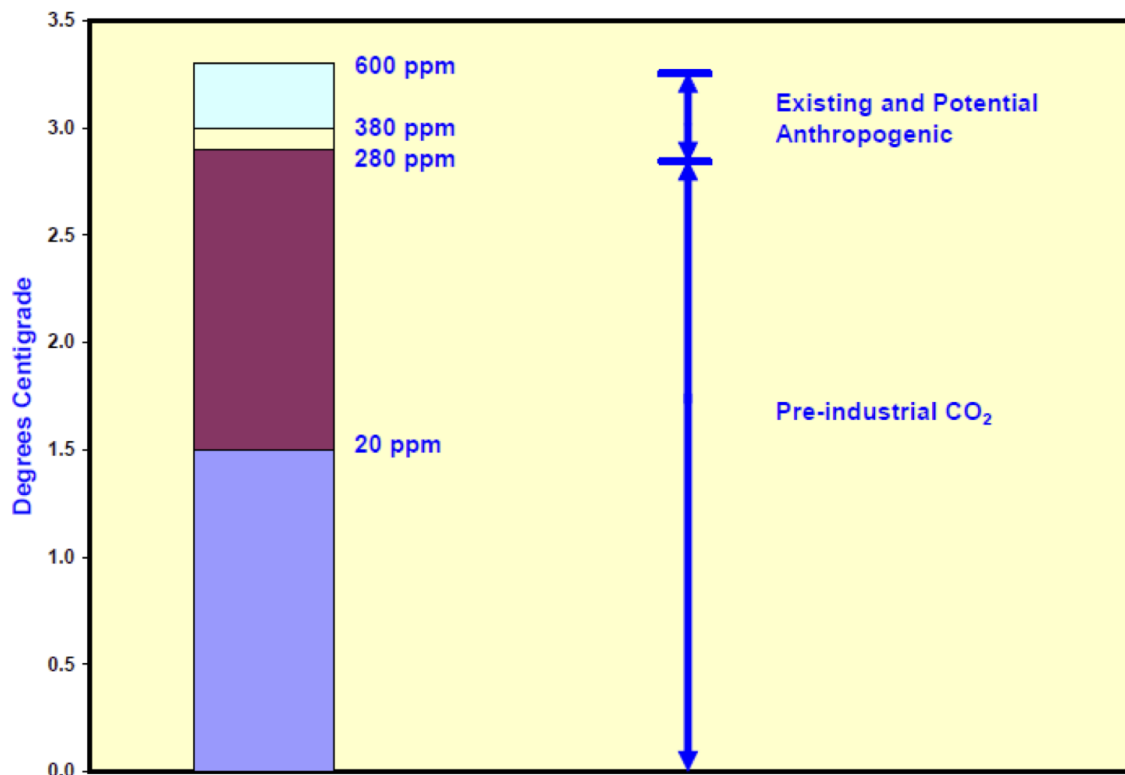
schuld.

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 CO2 in die**

**Luft, das
verstärkt den
Treibhauseffekt.
Richtig ist dass
der Wasserdampf
den überwiegenden
Beitrag liefert.
Der vom CO₂ kann
aus der folgenden
Graphik abgelesen
werden inklusive
des Effektes einer**

Steigerung des CO₂-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
CO₂-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

CO₂-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 CO₂-Gehalt
die Produktion der
Biomasse deutlich
erhöhen würde.**

**These 4:
Zusätzliches
CO₂
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 CO₂
die Rolle
des
Glases
übernimmt**

– es

lässt die

Wärme

nicht

entweichen

n. Je

mehr CO₂,

desto

dichter

oder

dicker

das Glas

und umso

größer

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Erwärmung

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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

rt.

Selbst

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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

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

auch

durch das

beschränkt

te

Luftvolumen

en

unterdrückt wird.

Die

Situation

wird

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 CO₂.

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

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Temperatu

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where the reference standard used here is PDB (Pee Dee Belemnite) CaCO_3 .

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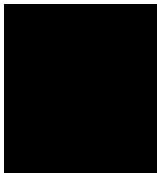
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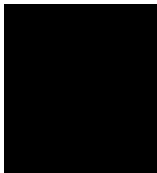
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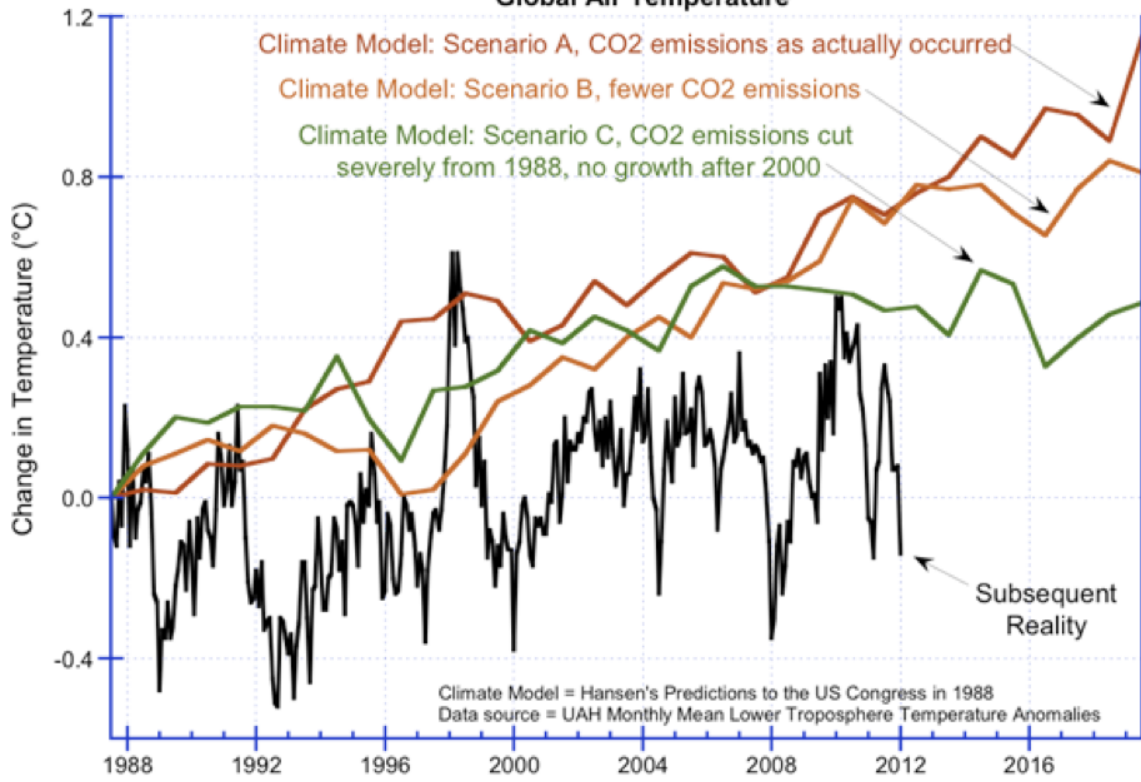
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Hansen's 1988 Prediction vs NASA Satellite Data Global Air Temperature



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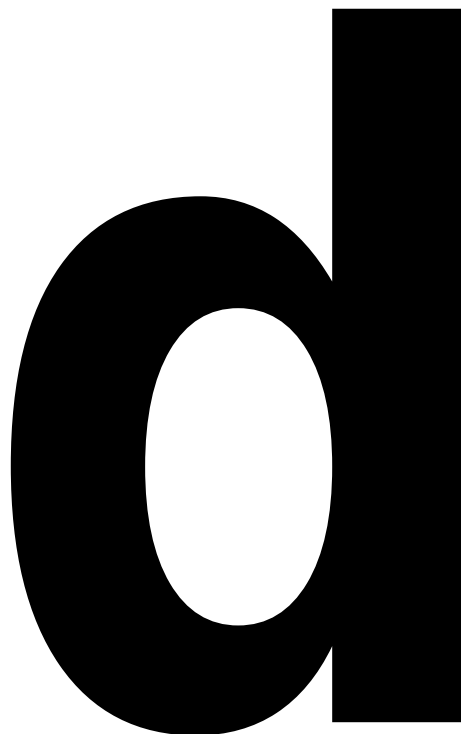
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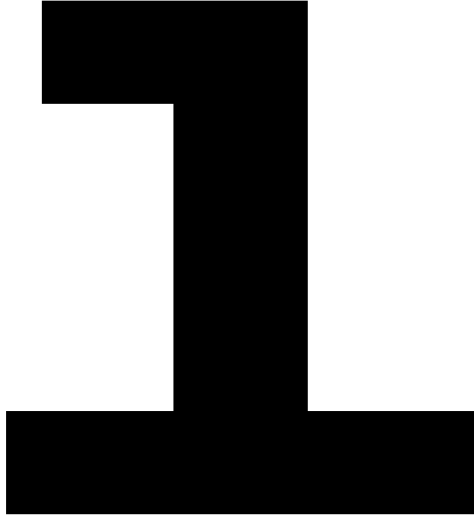
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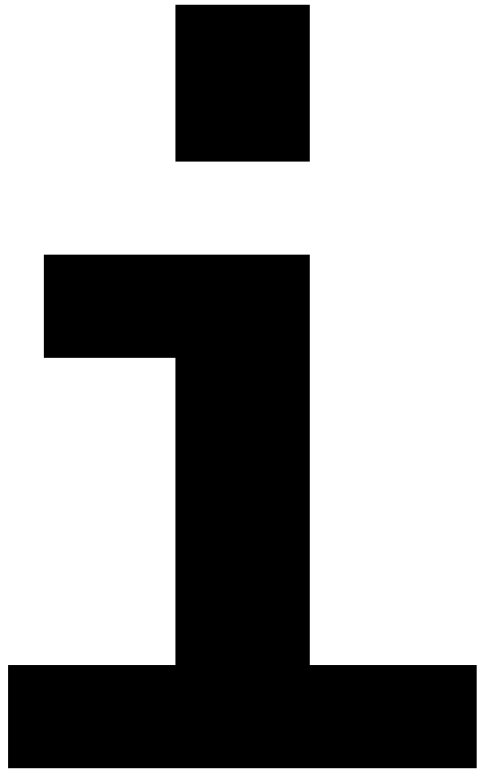


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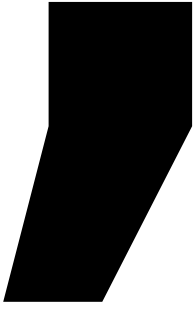
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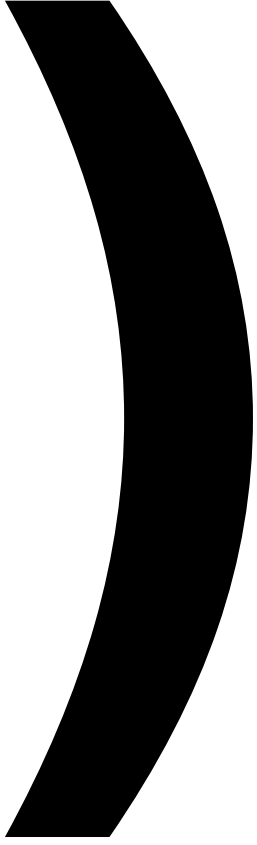
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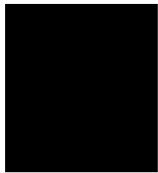
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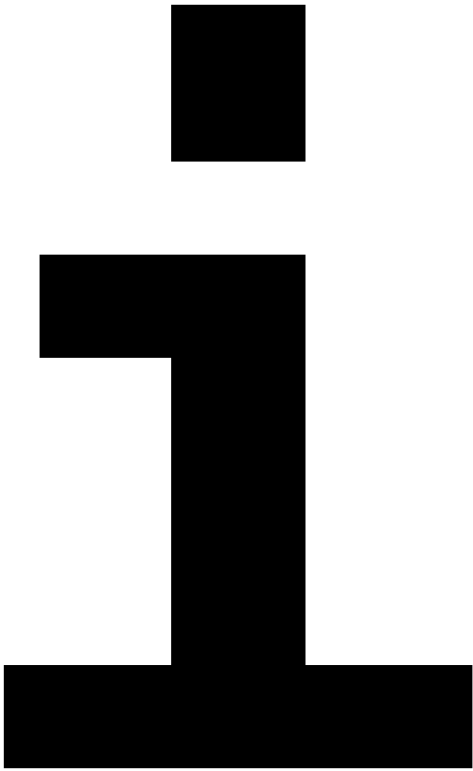
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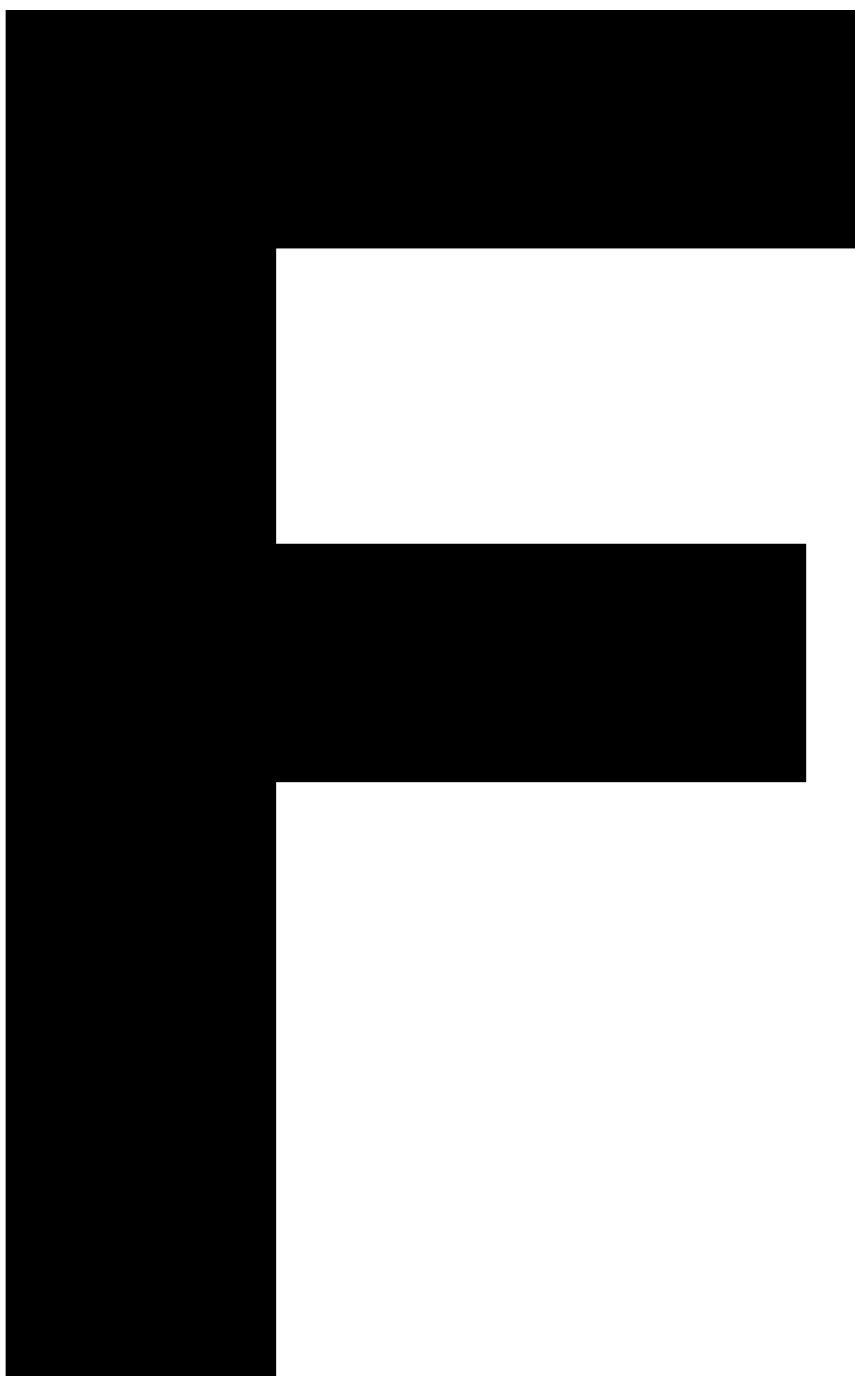
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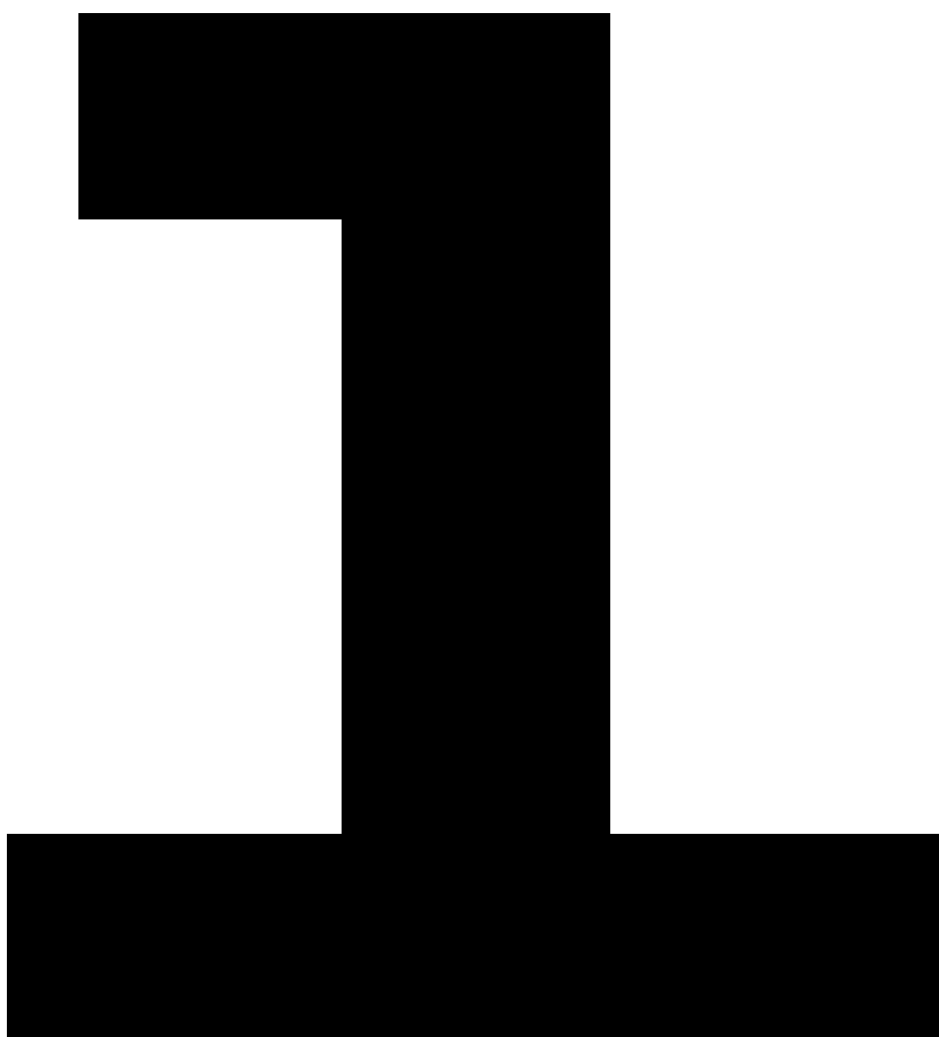
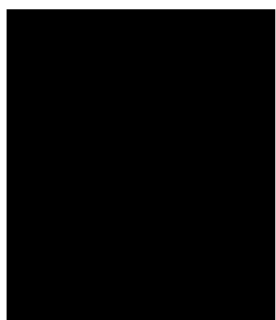
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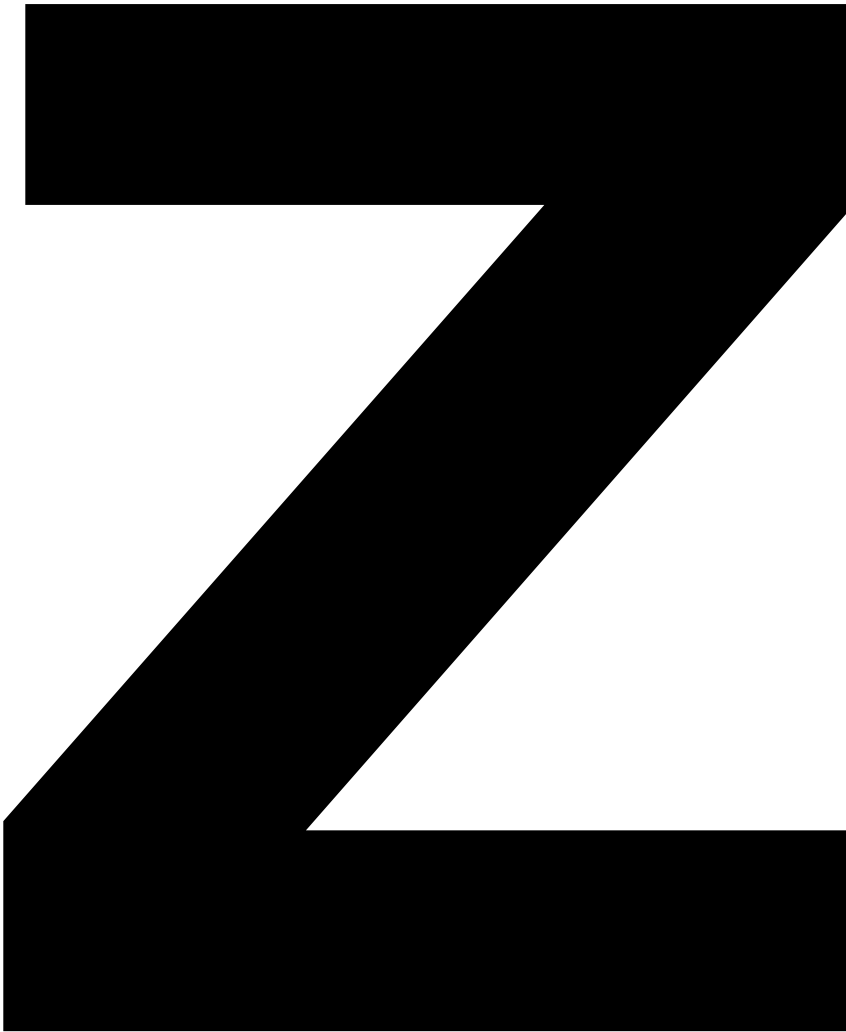
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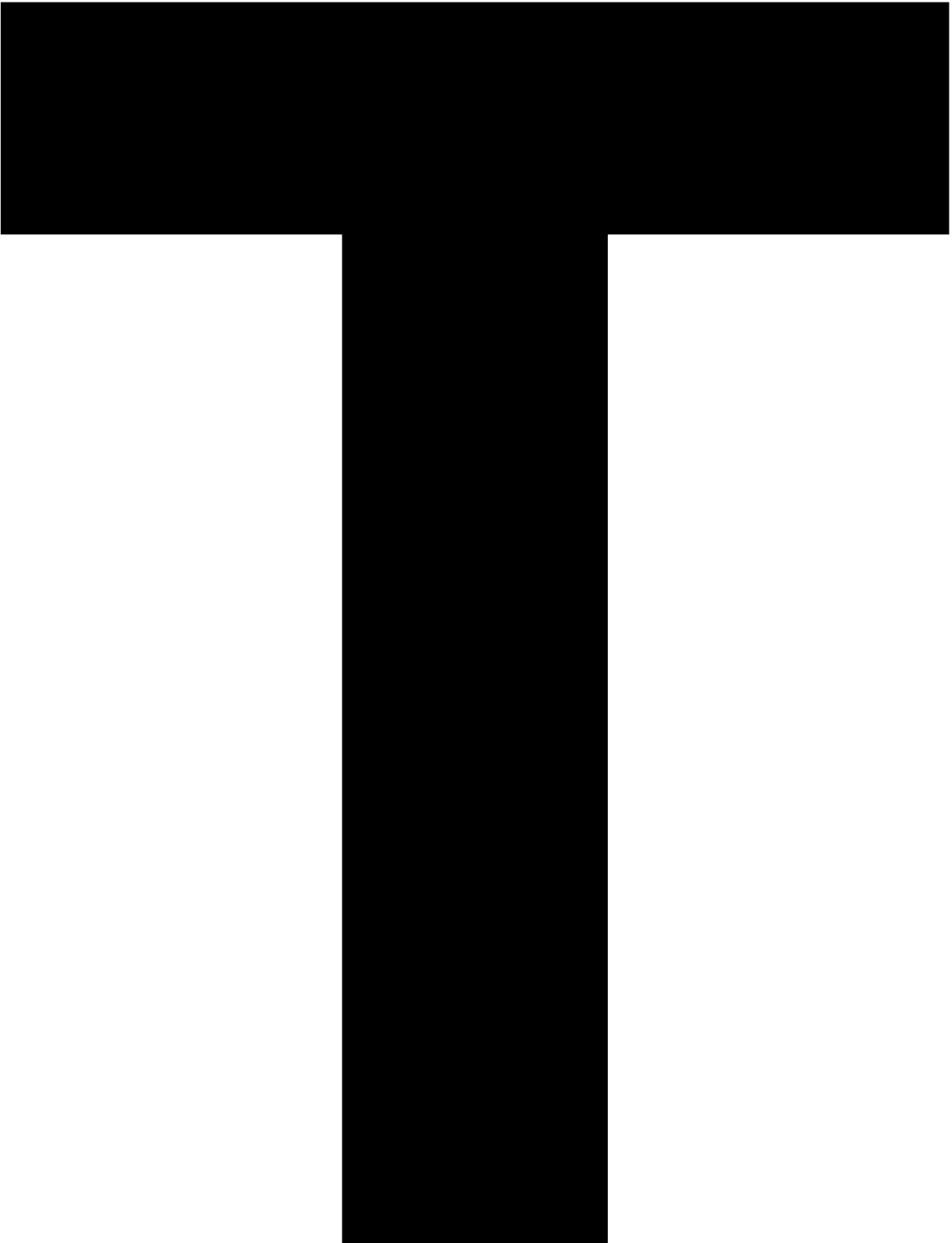
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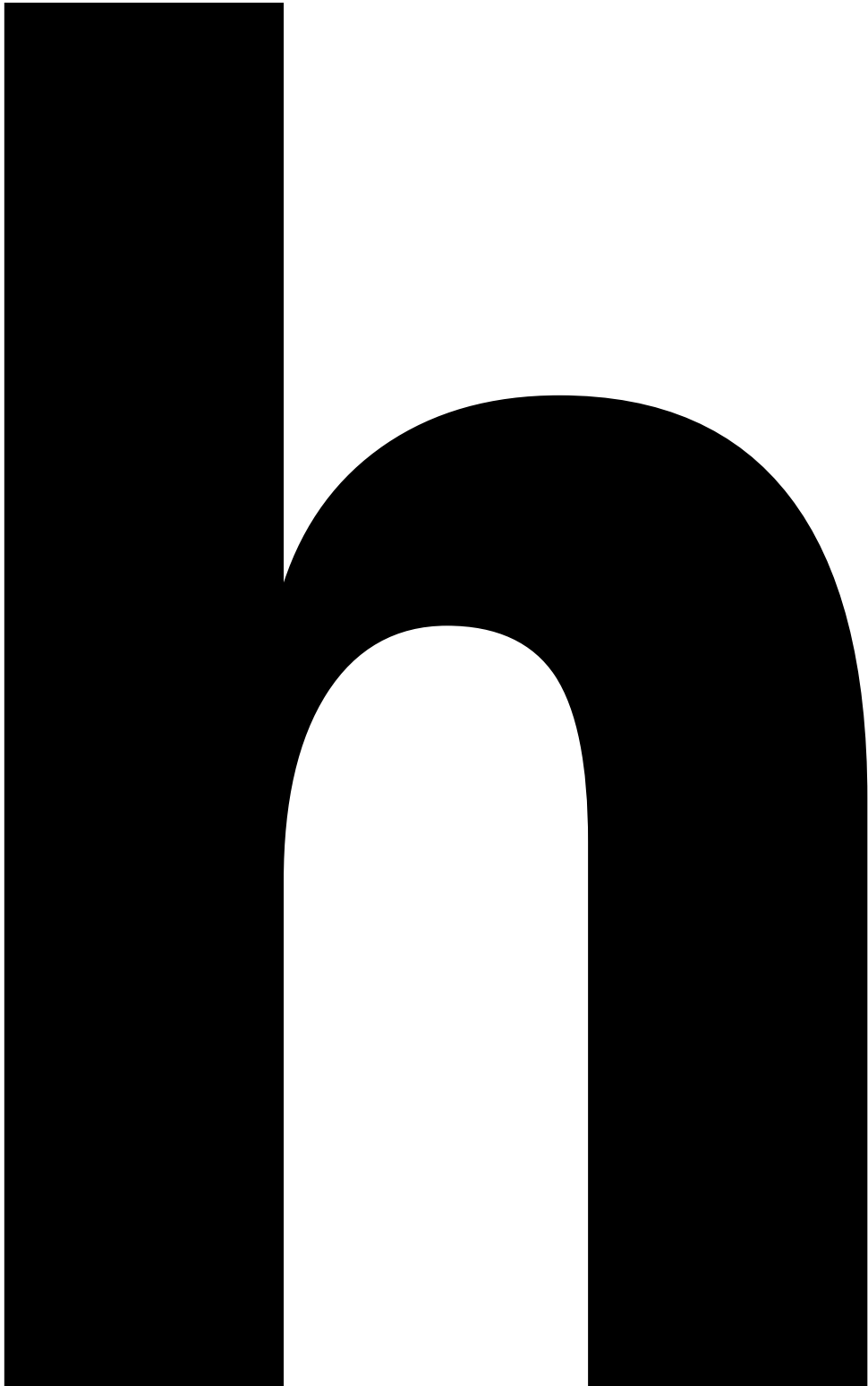
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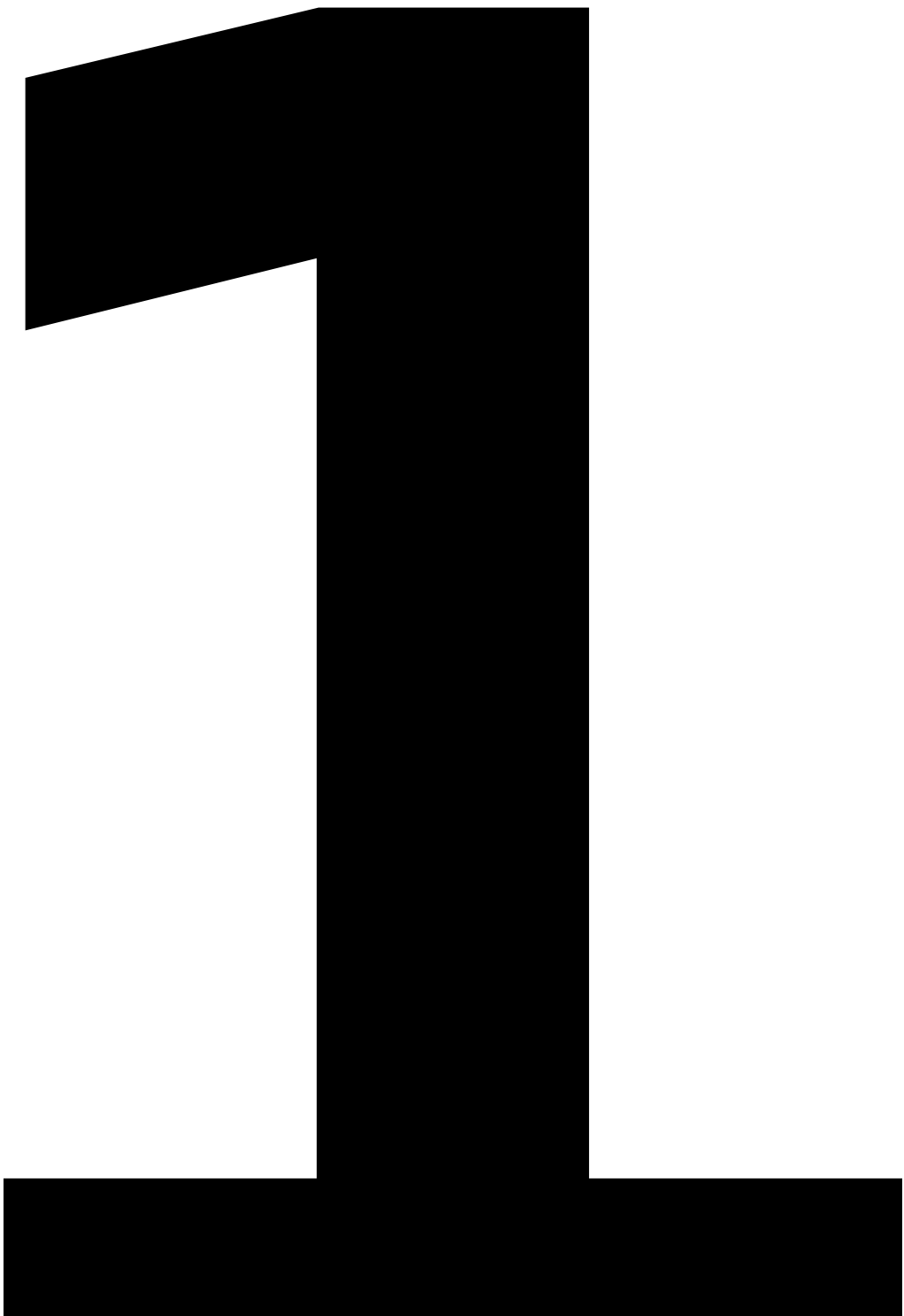


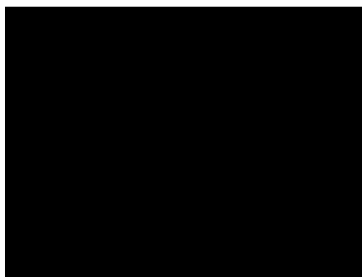
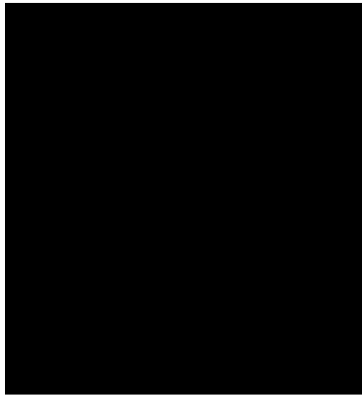


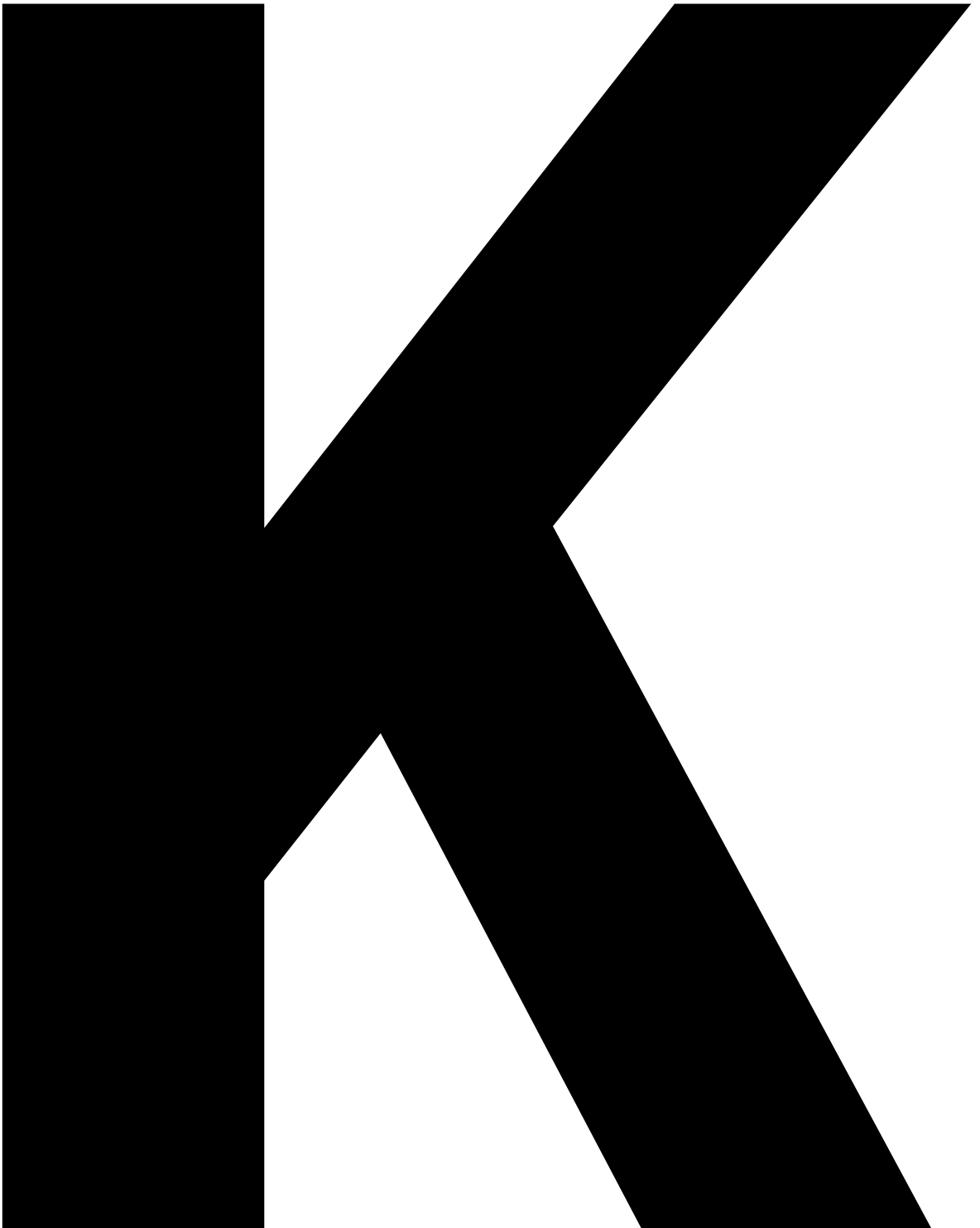
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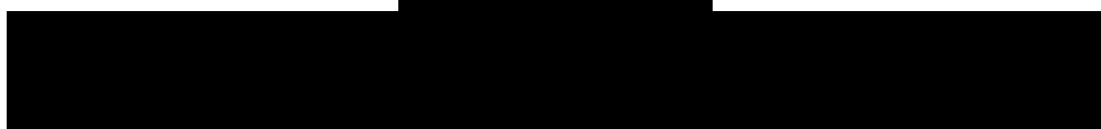
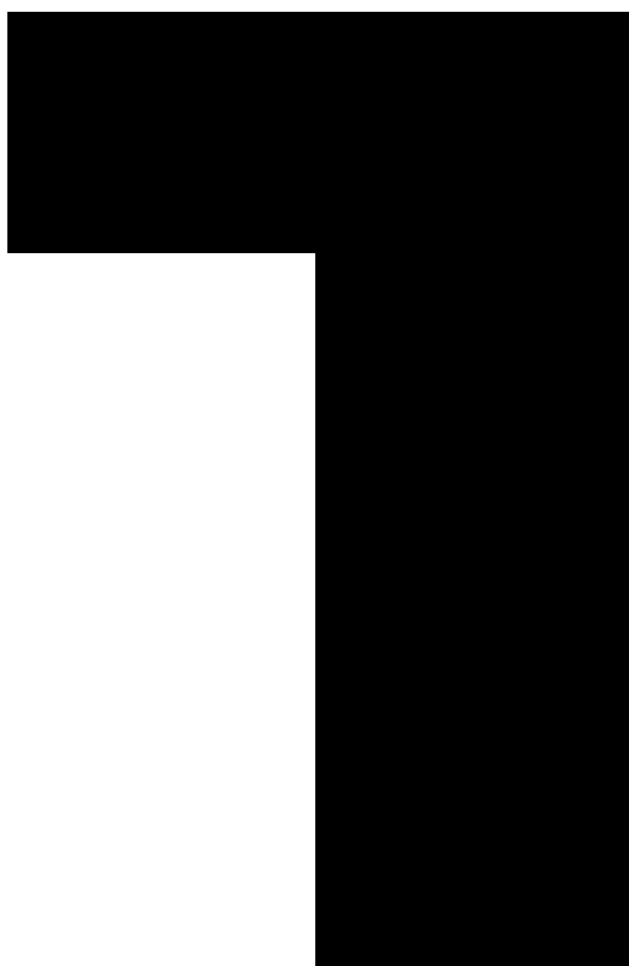
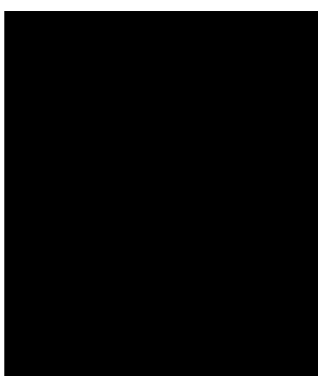
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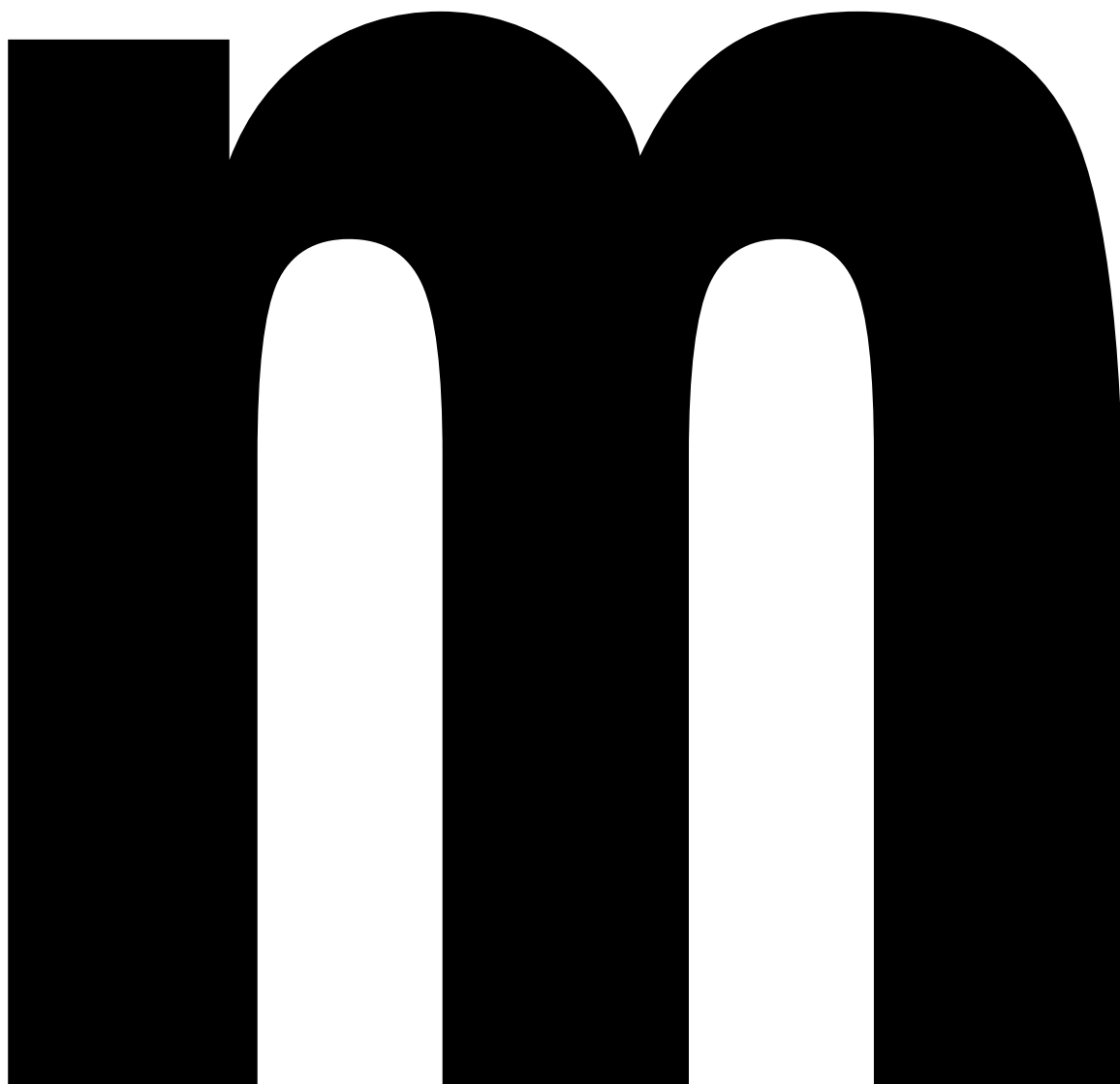






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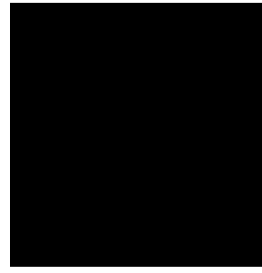
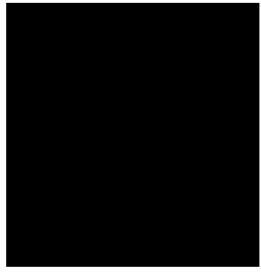


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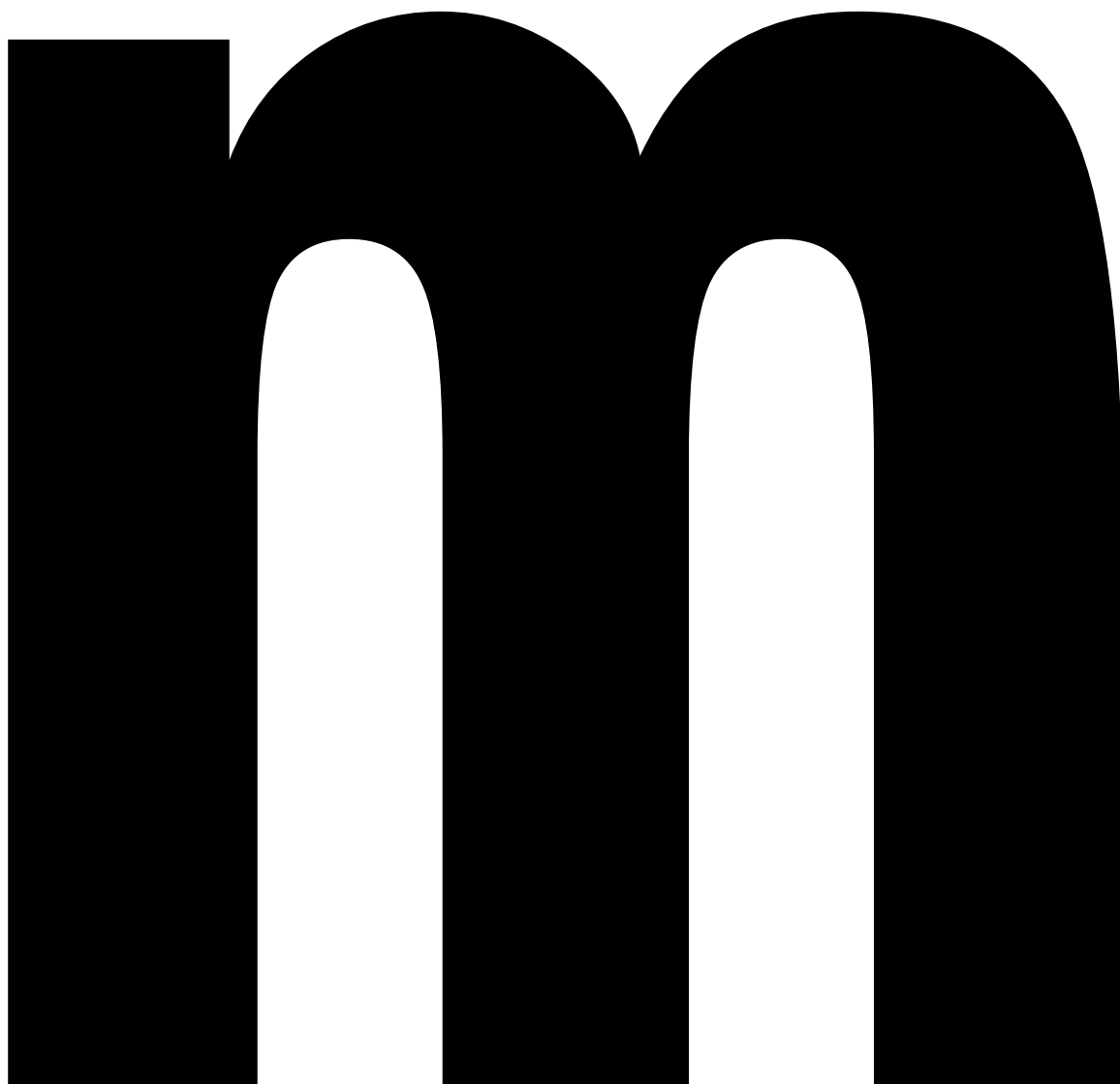
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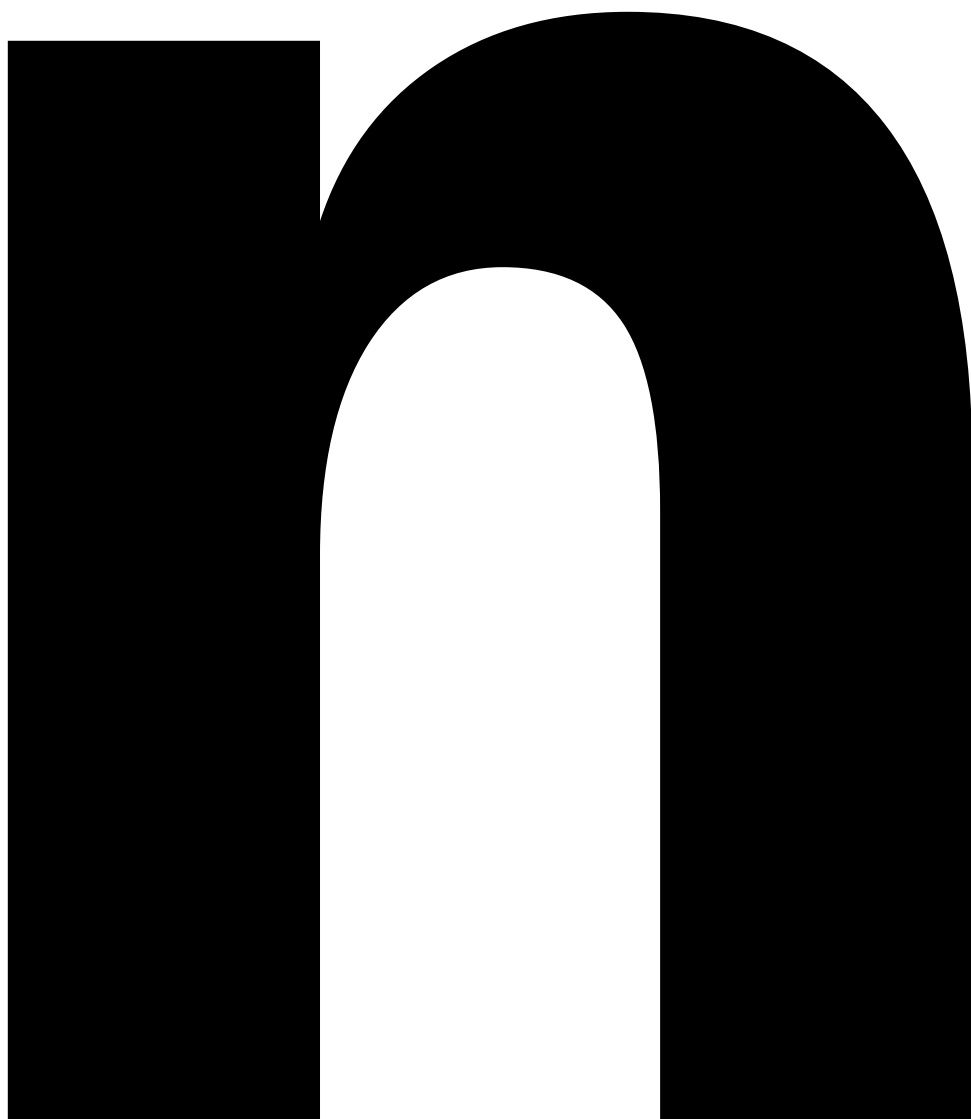
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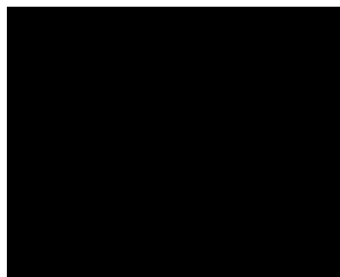




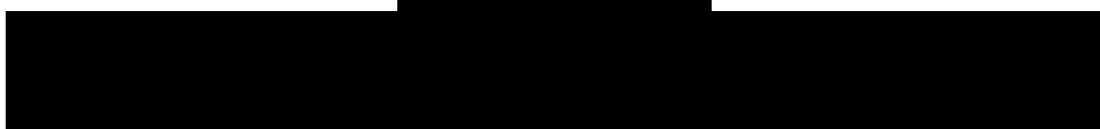
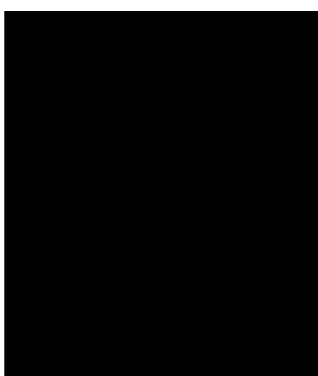
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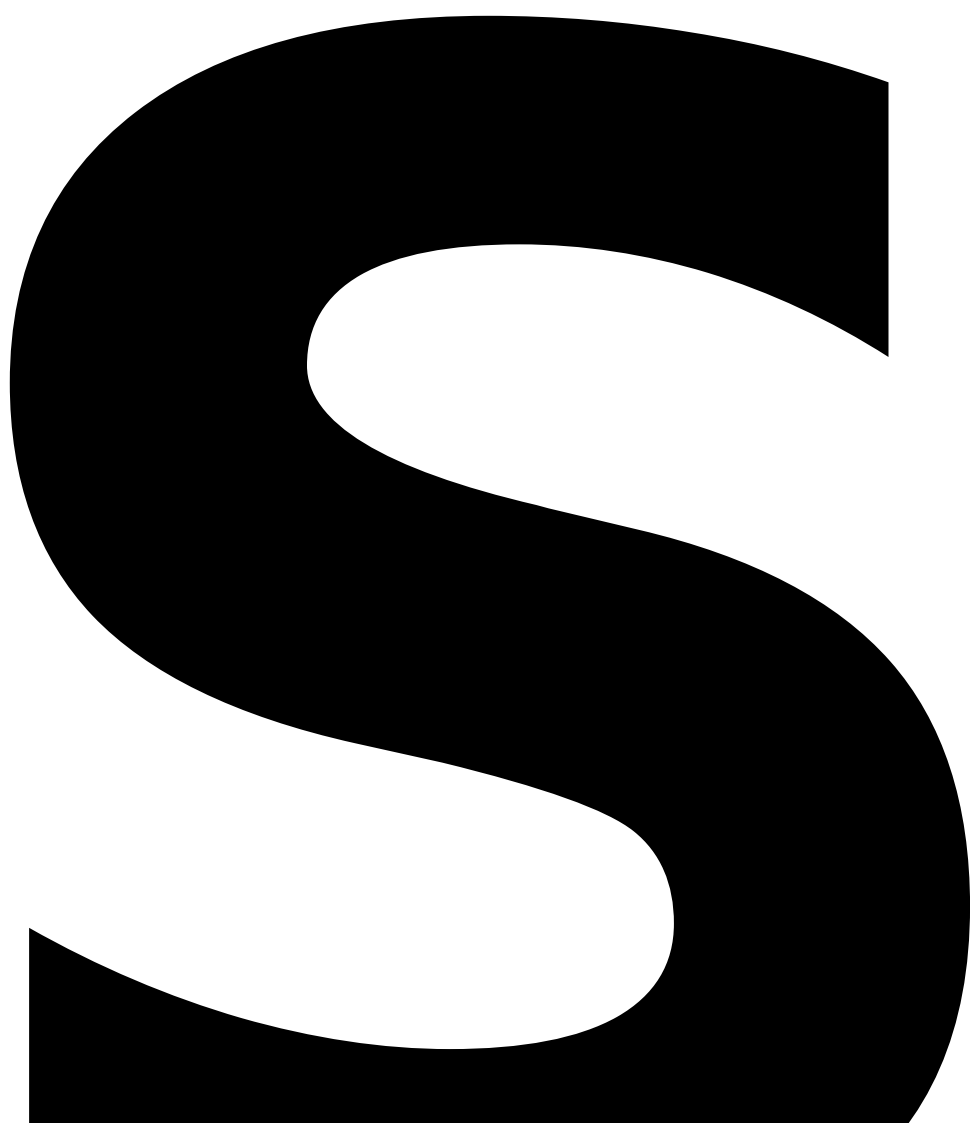


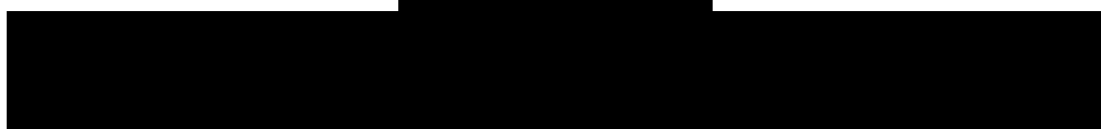
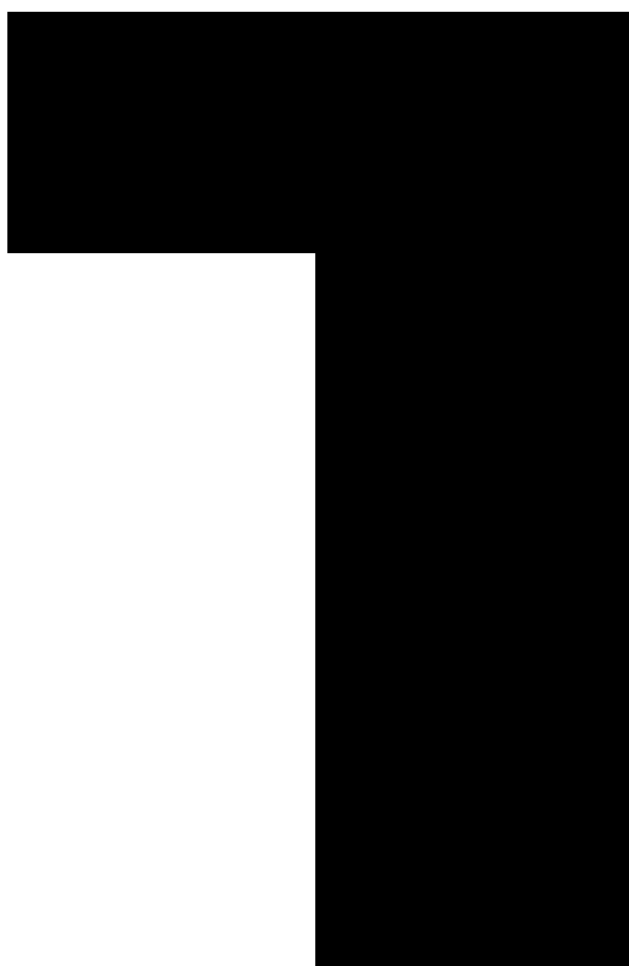
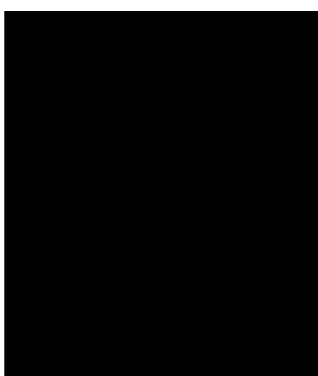
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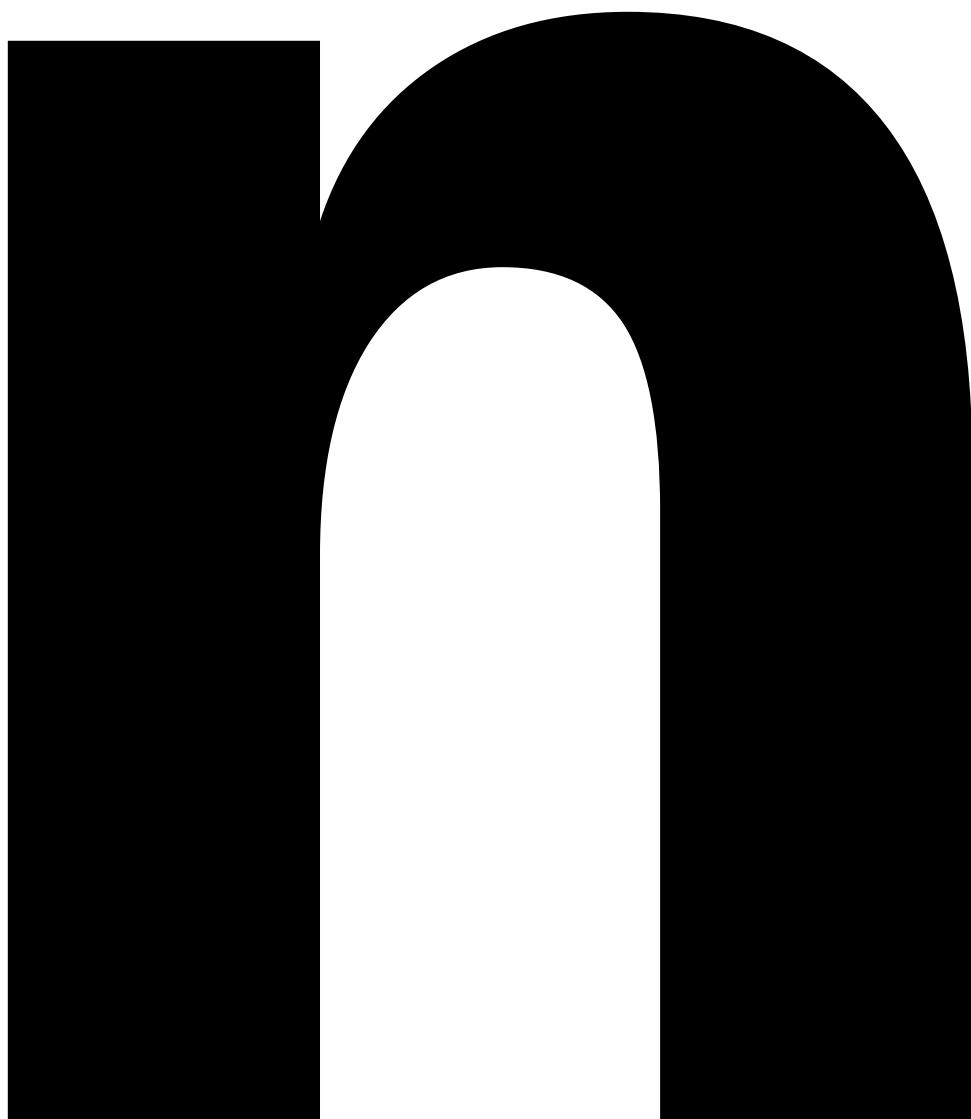


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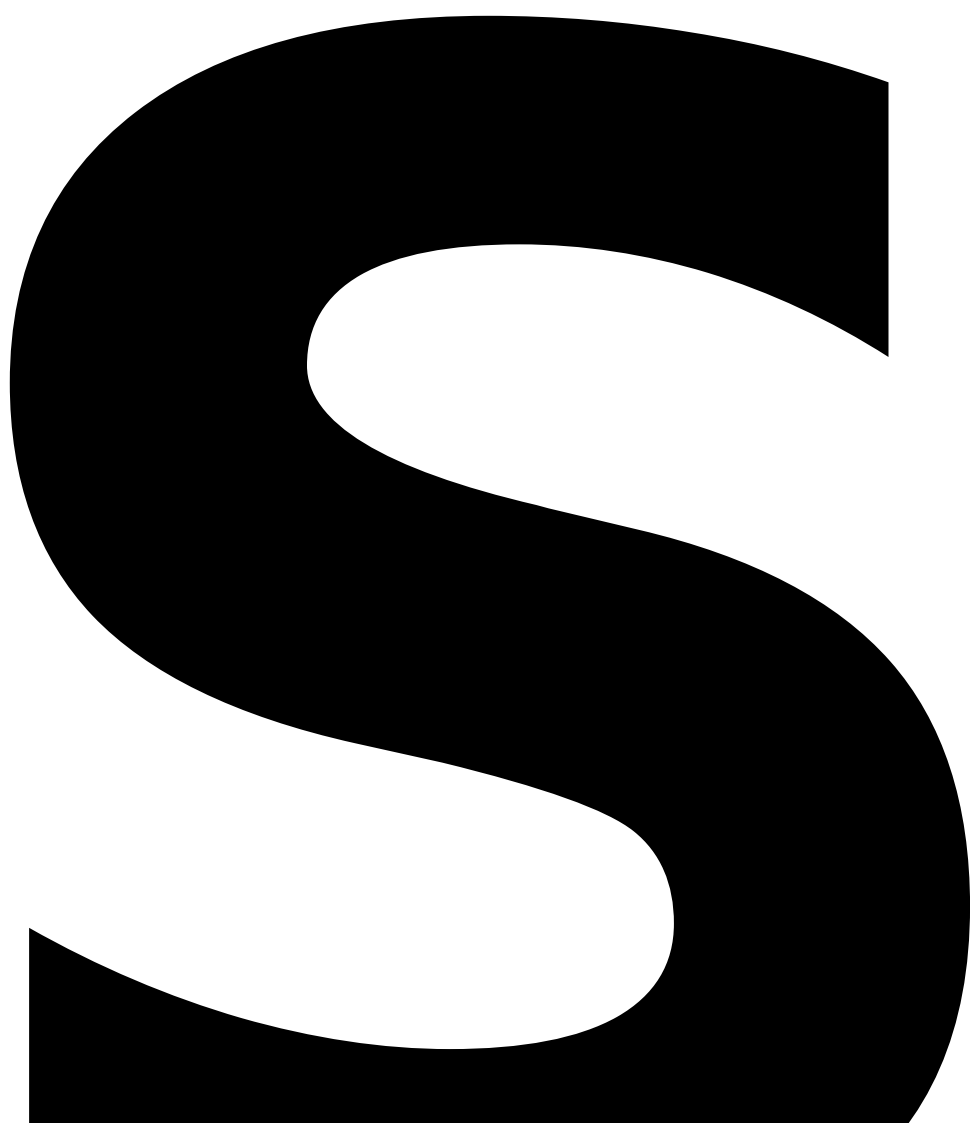
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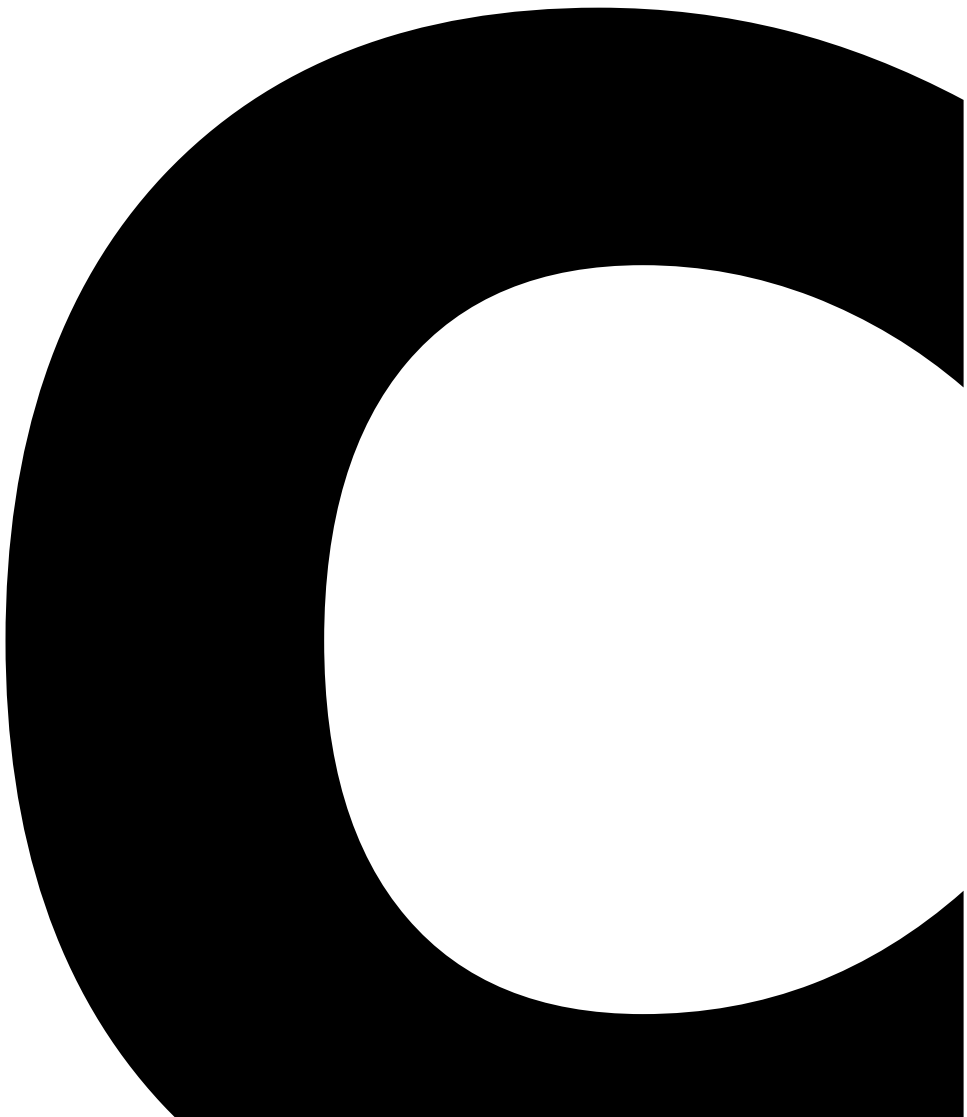
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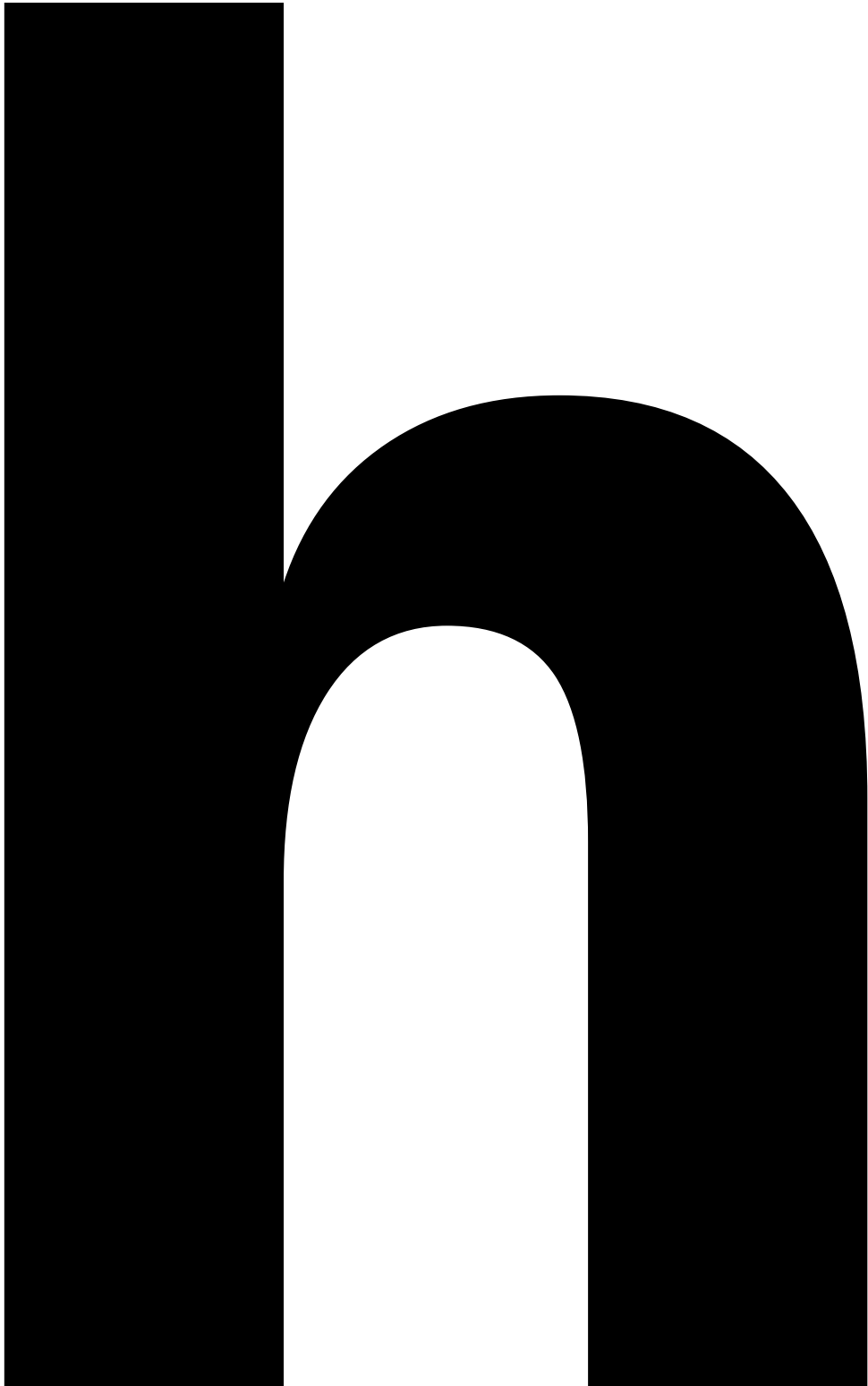


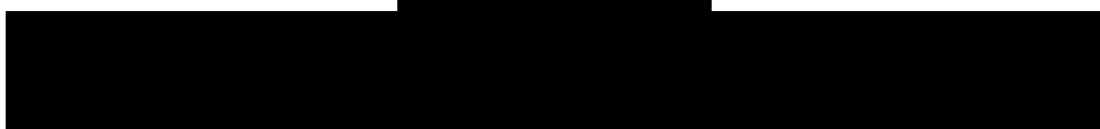
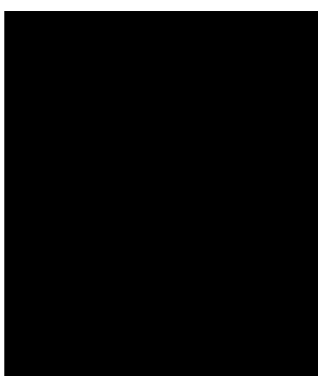
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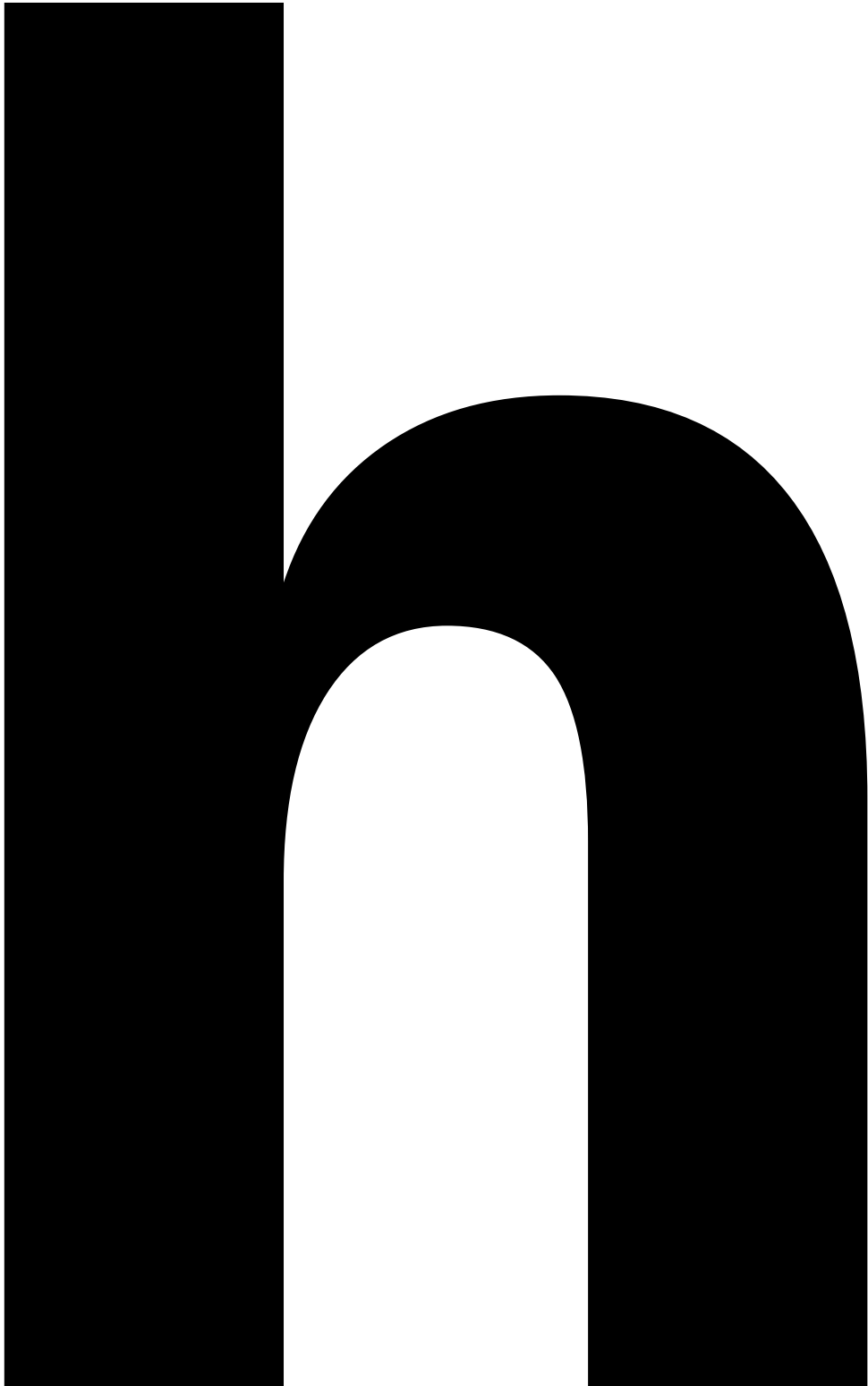


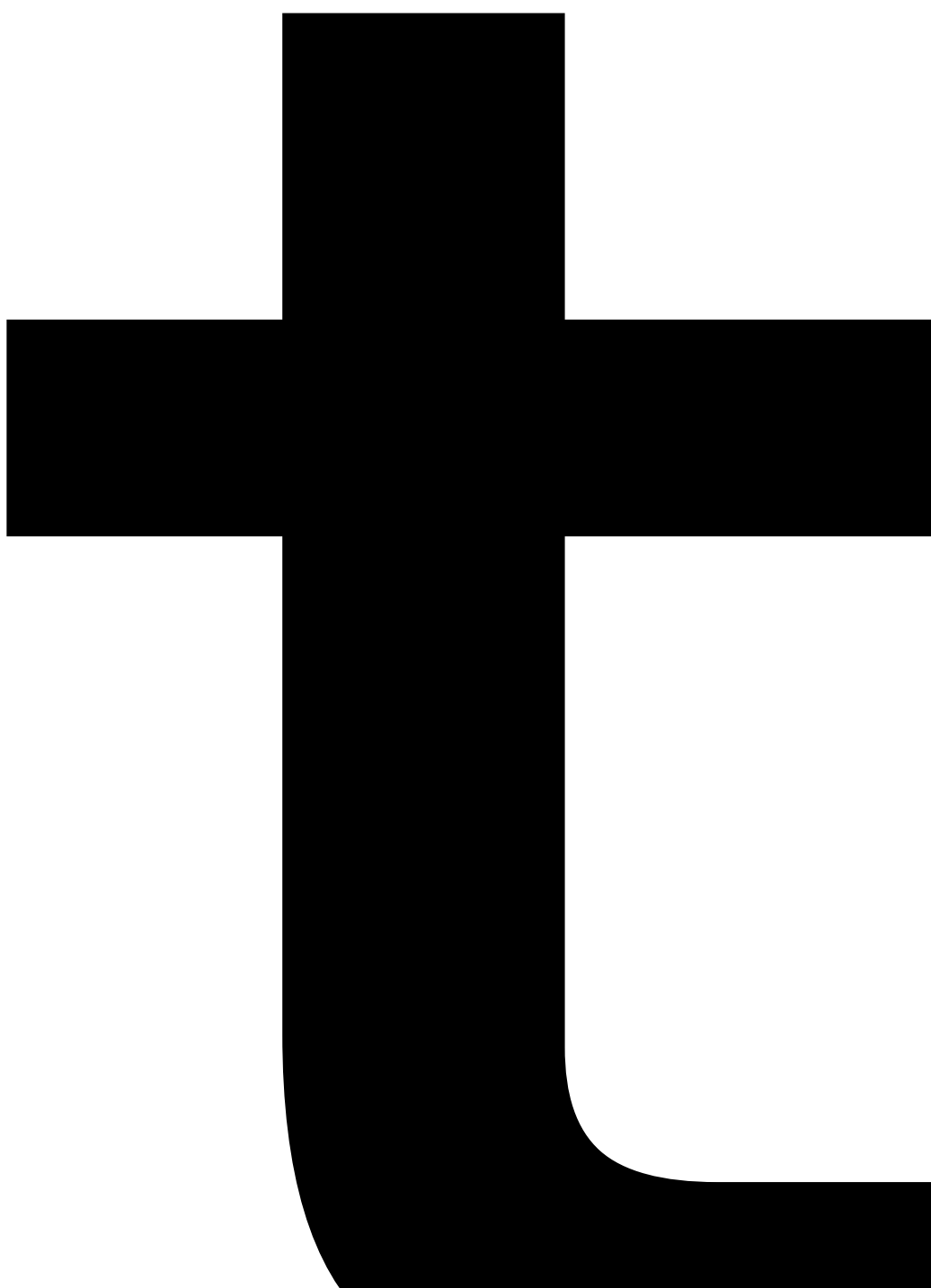












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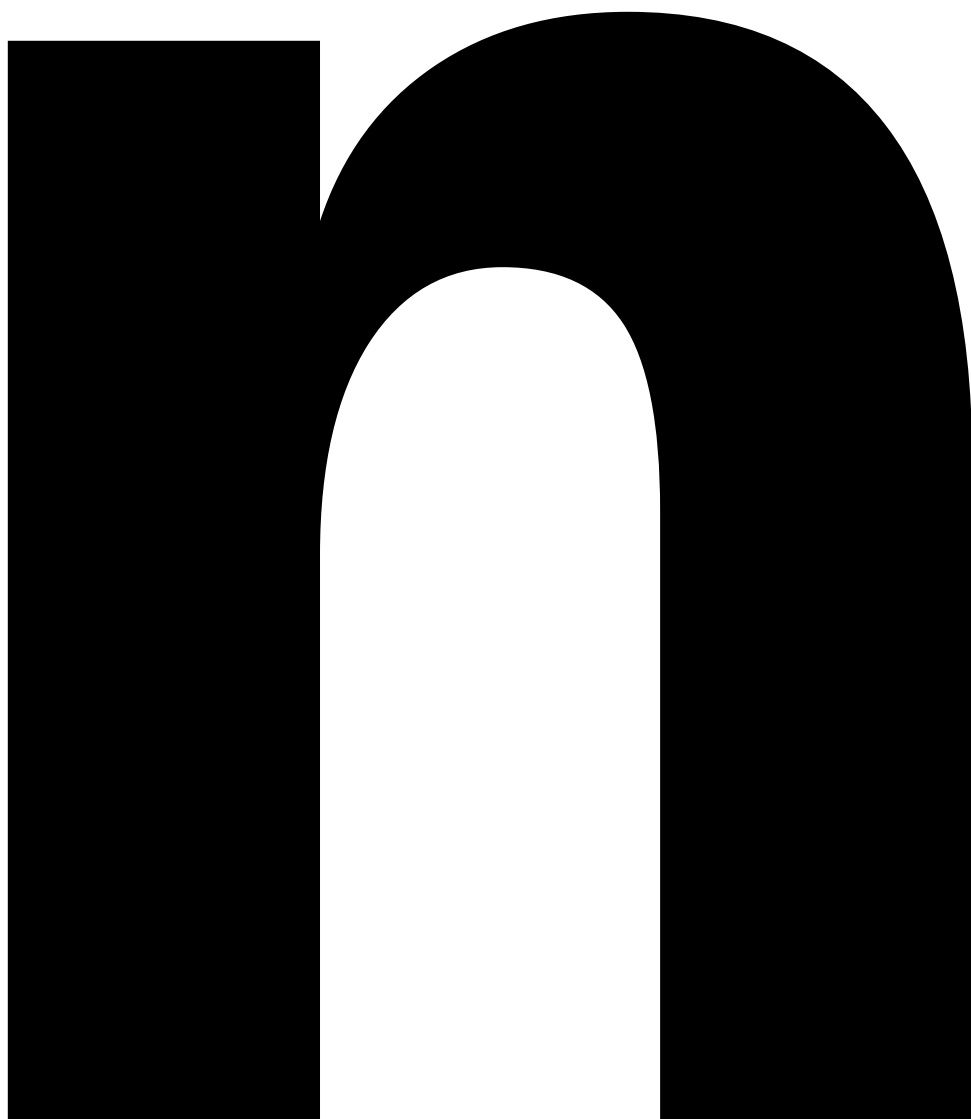
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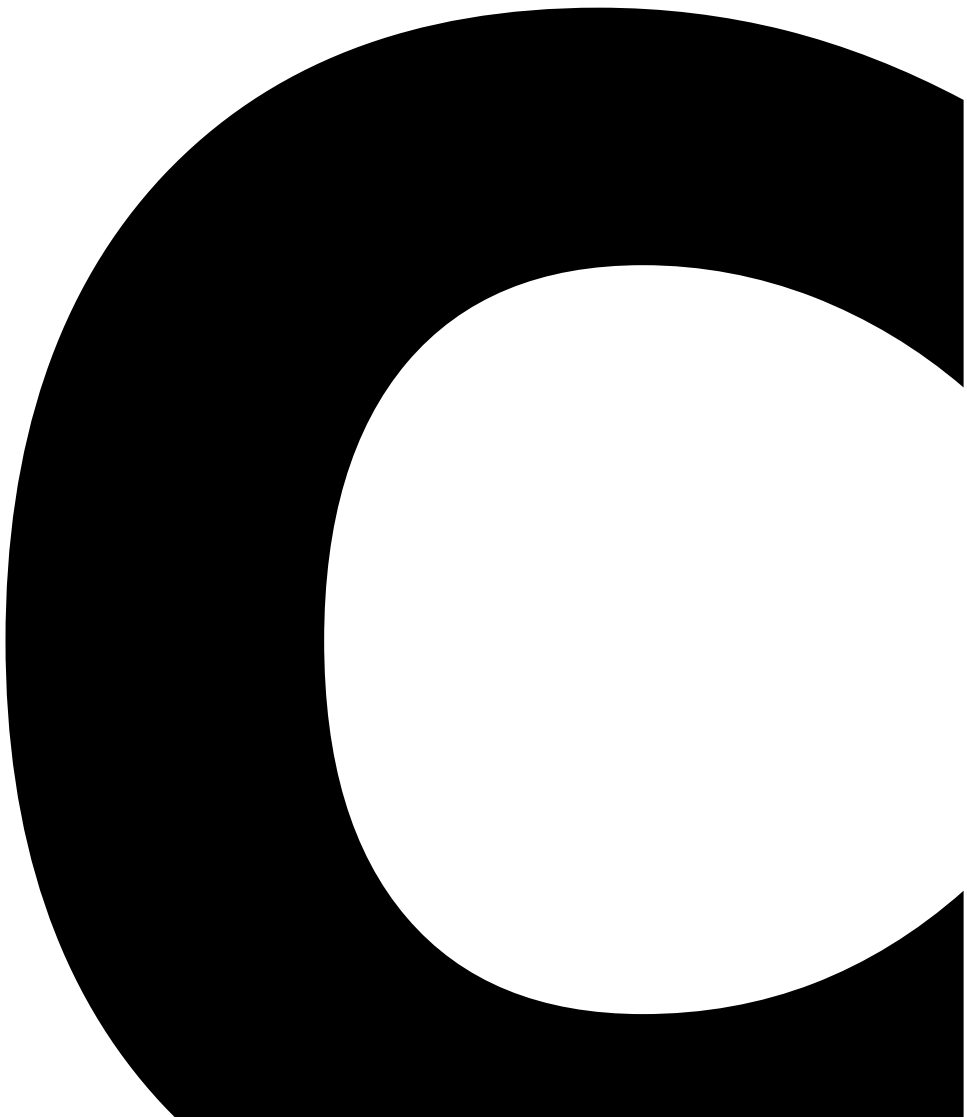


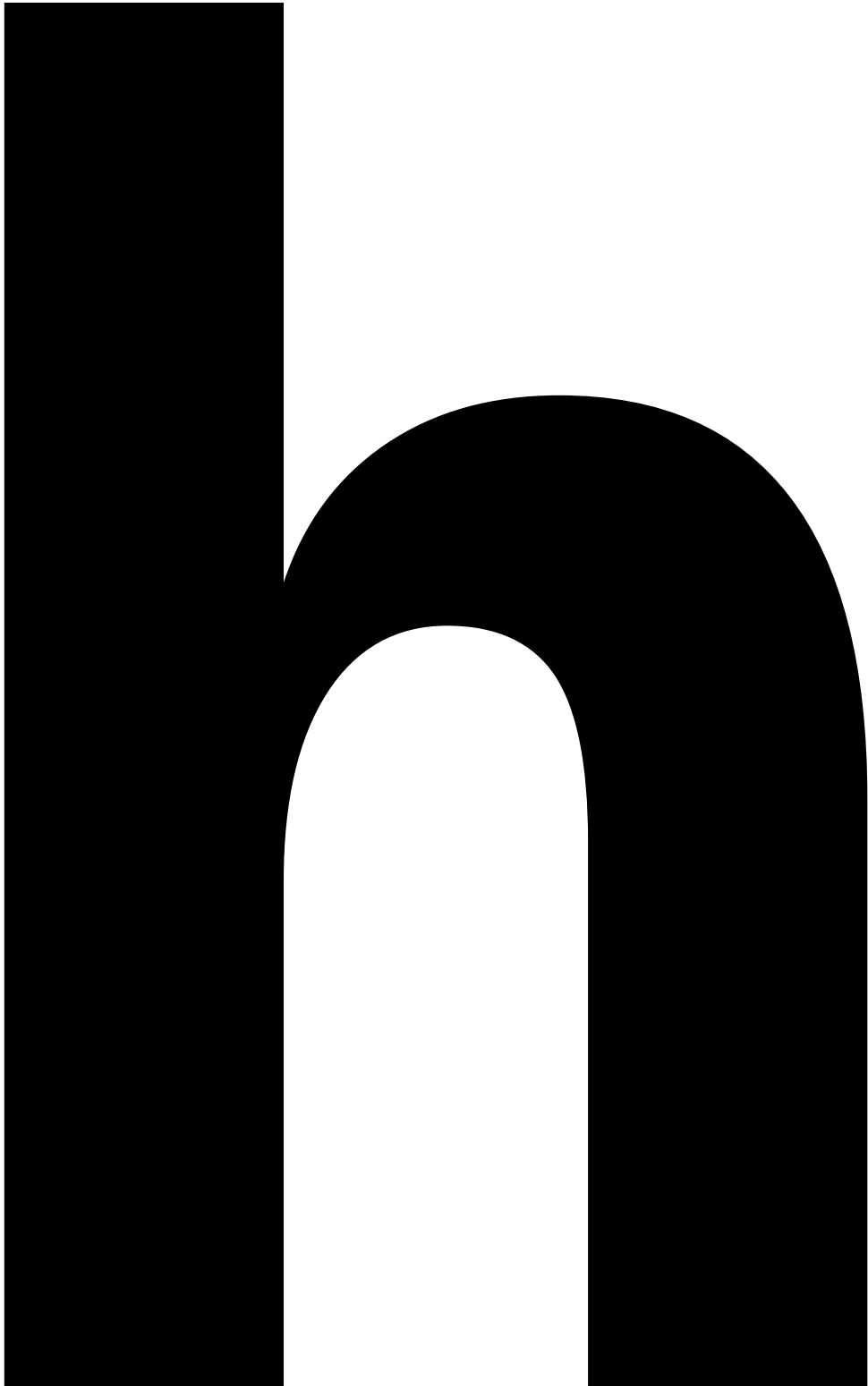
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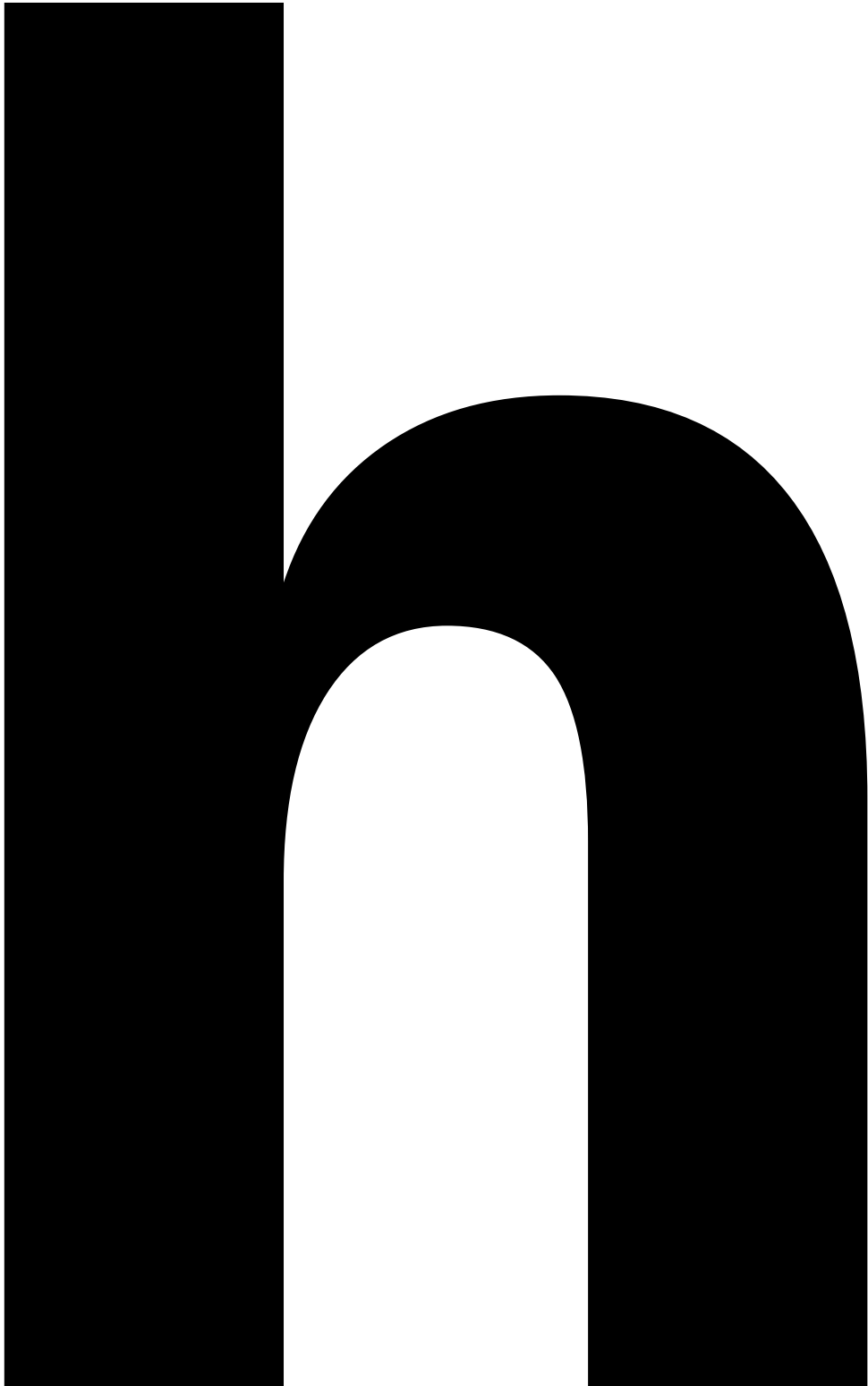
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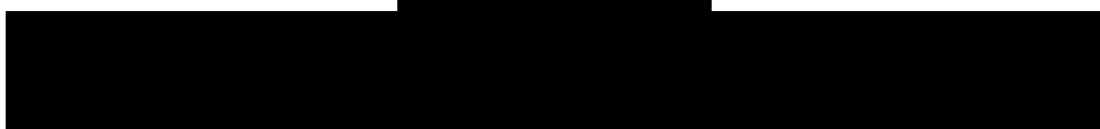
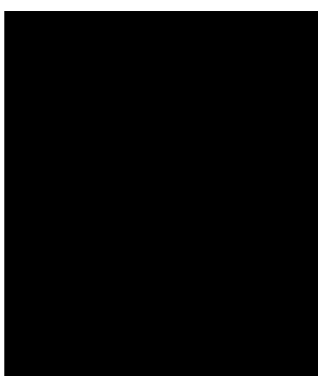
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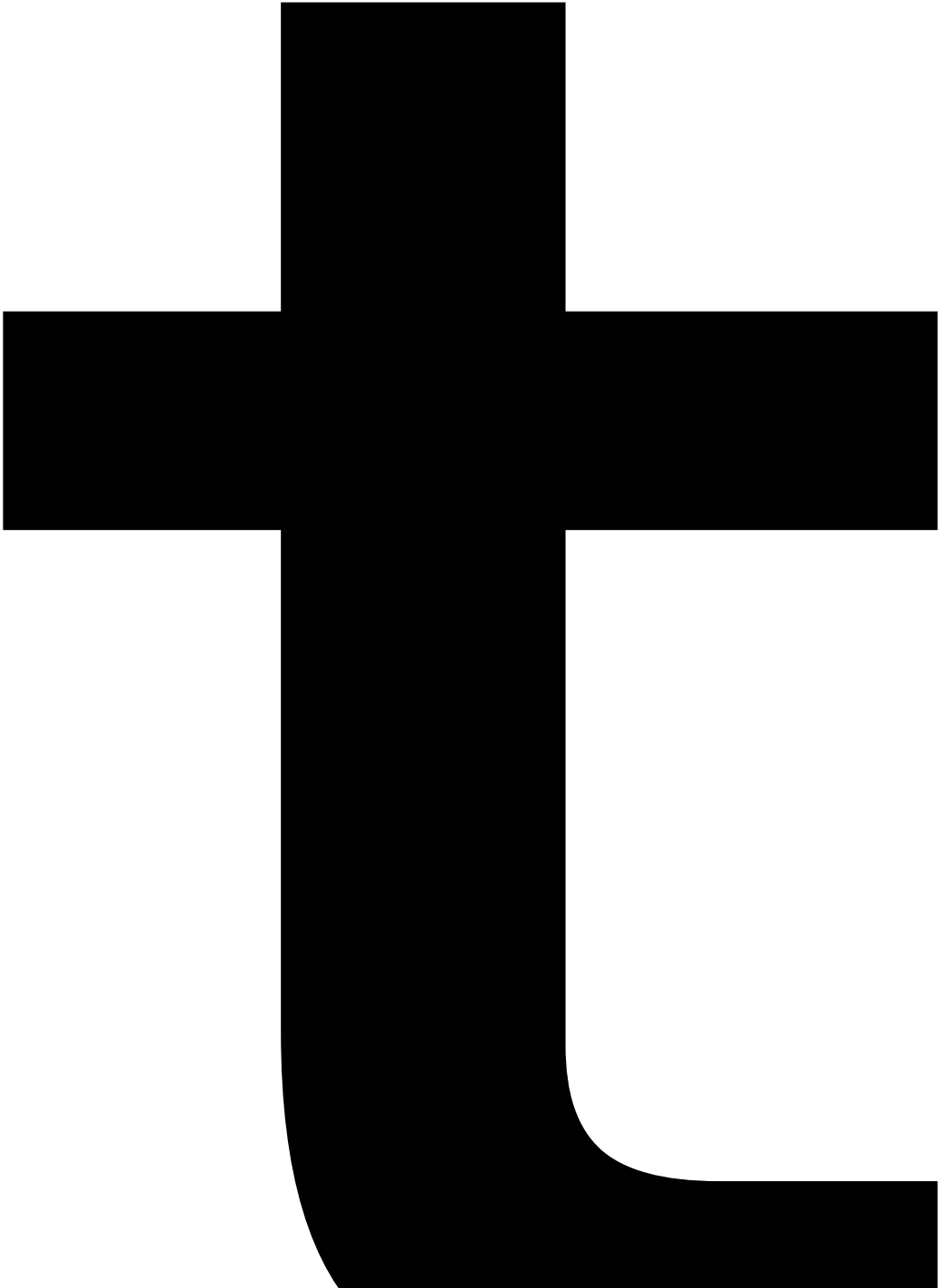


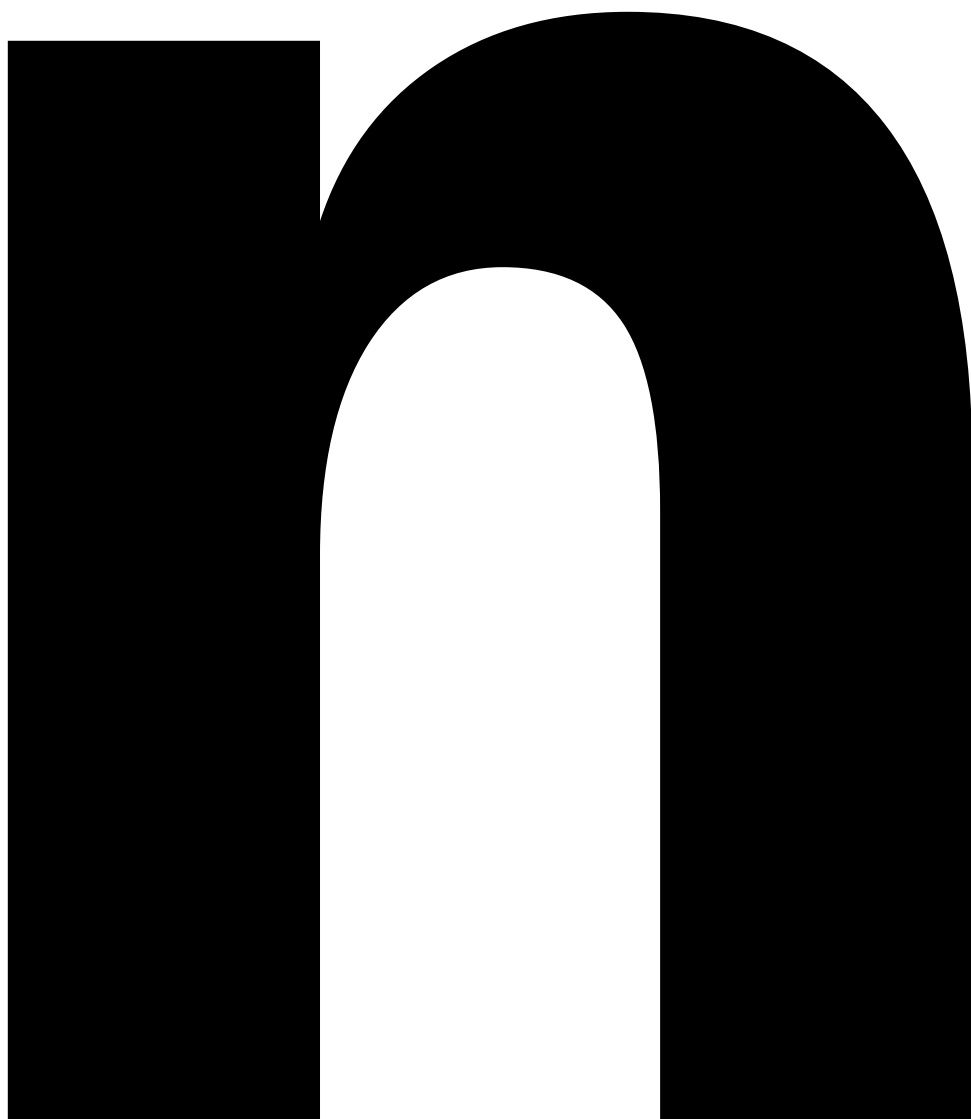


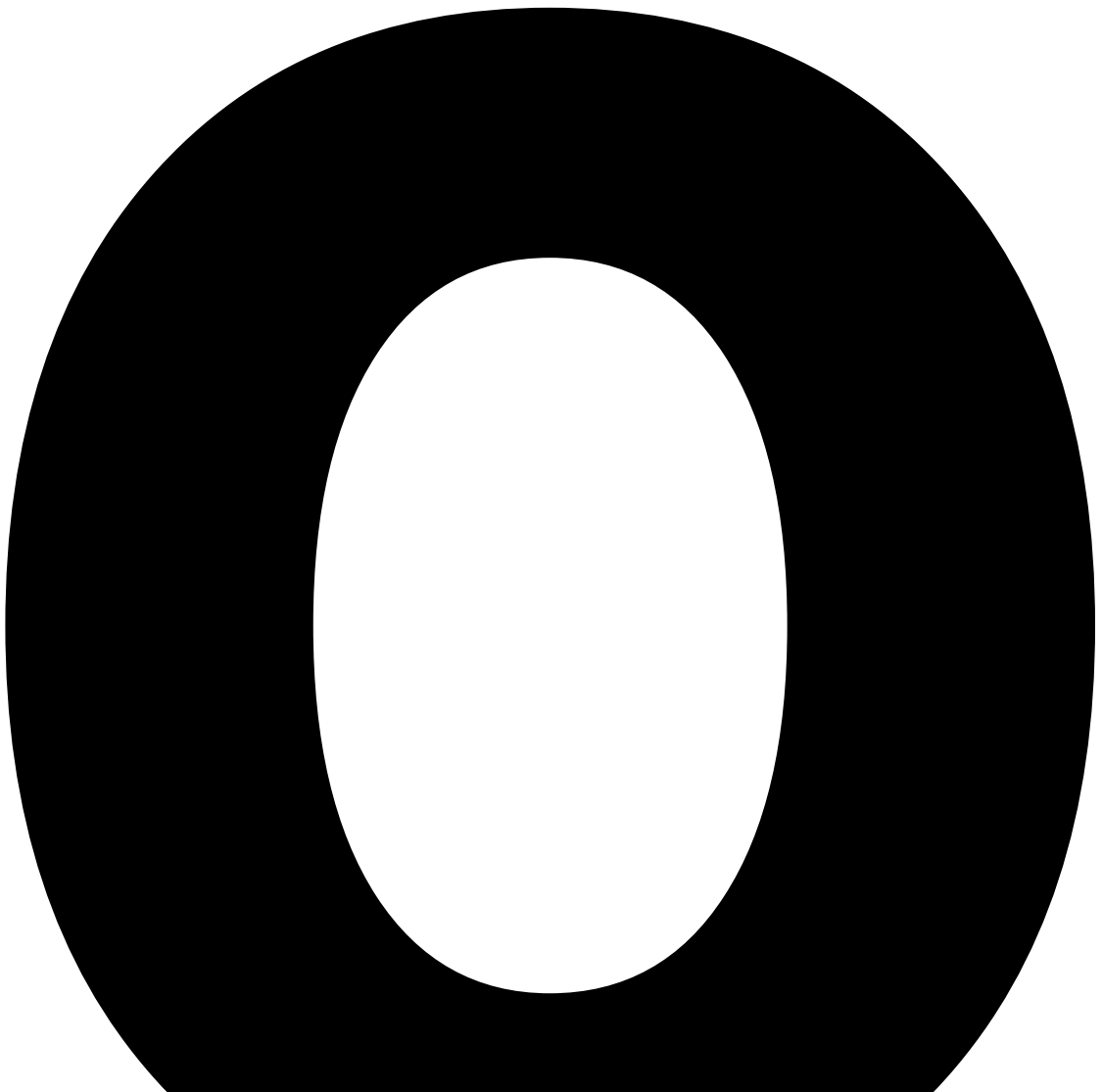


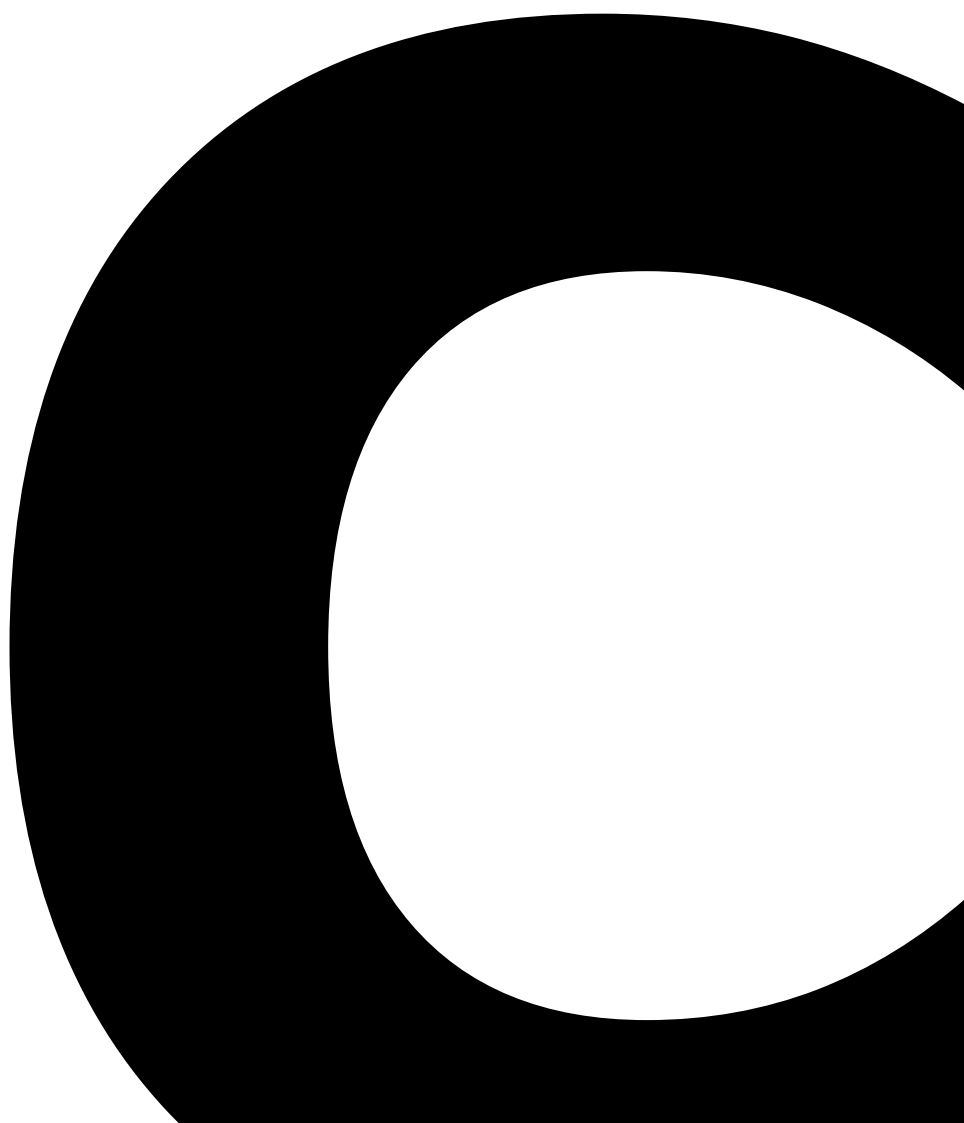
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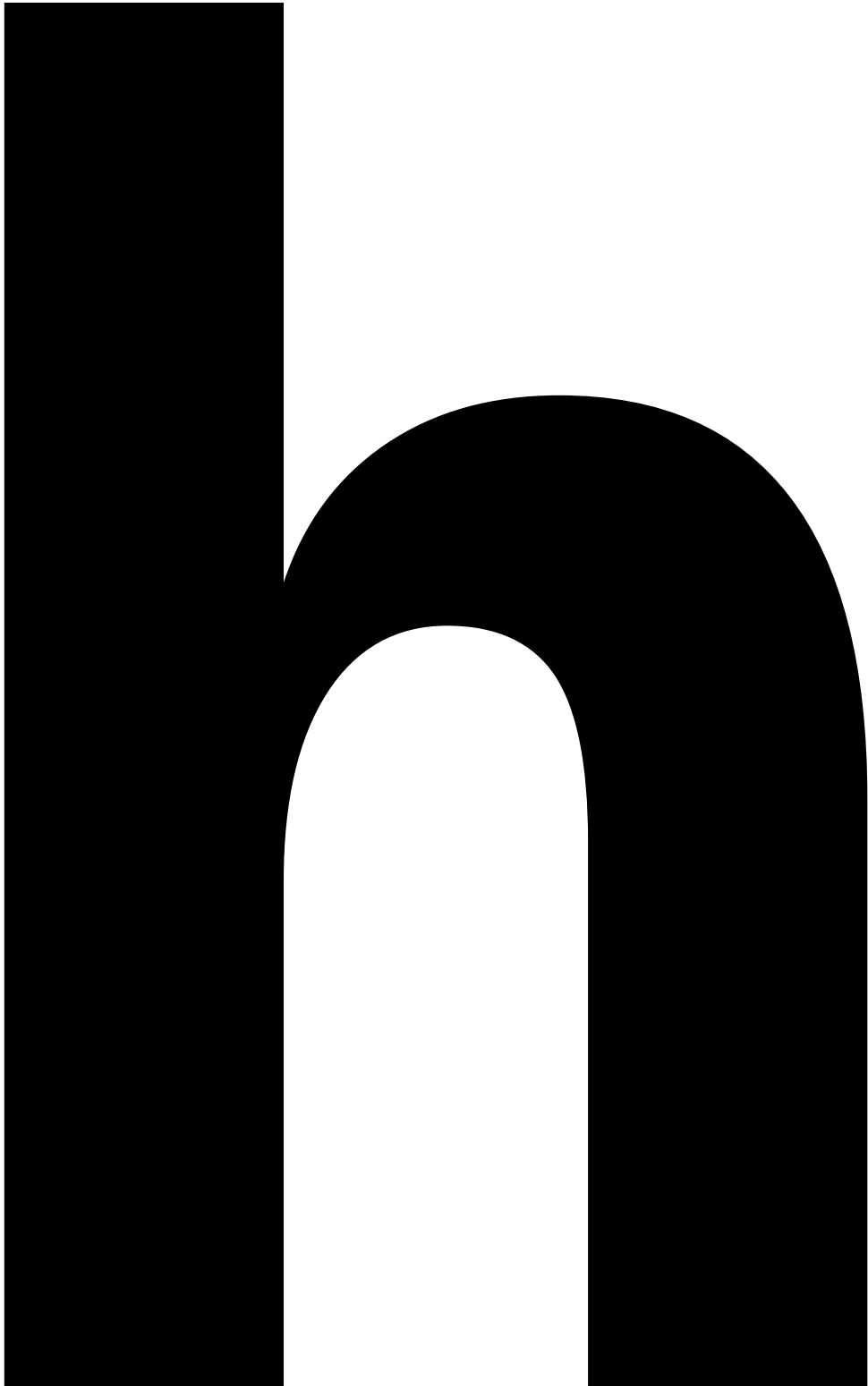


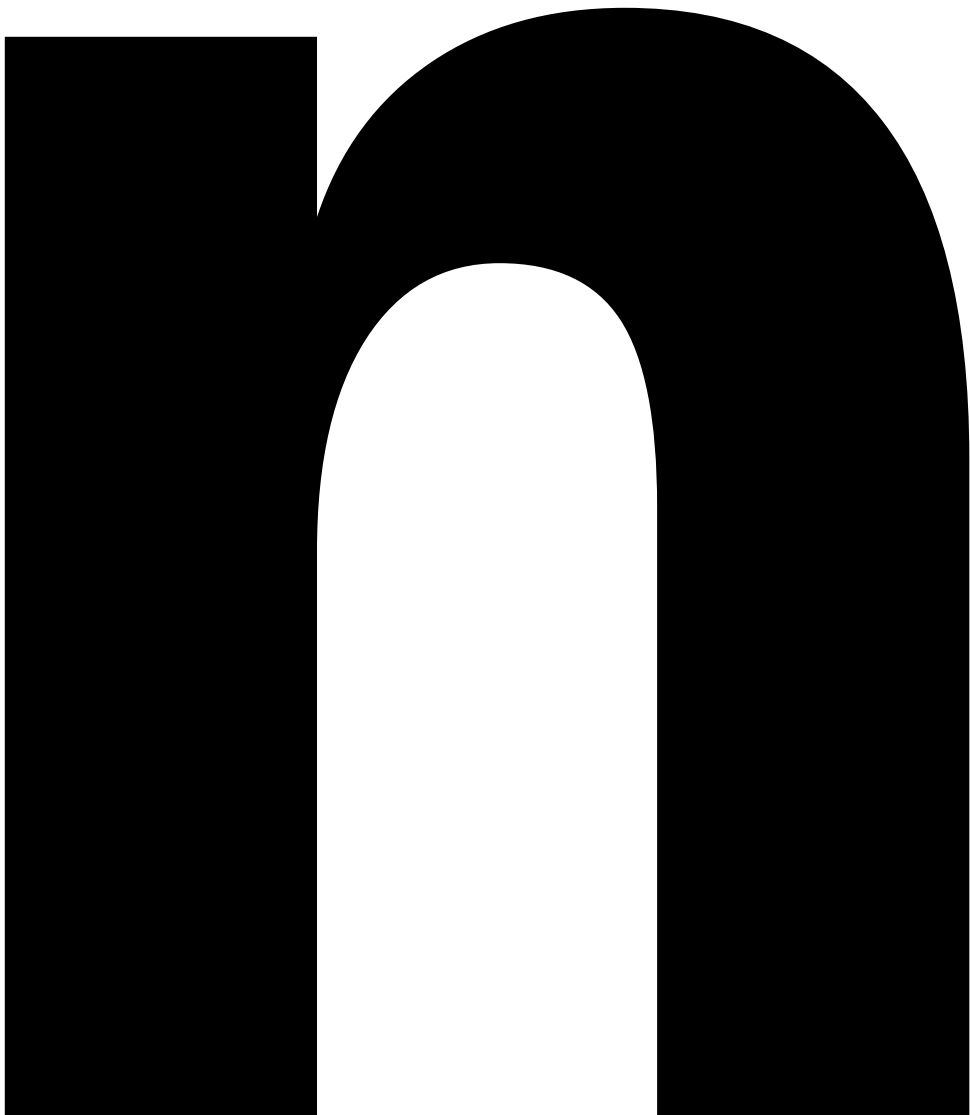


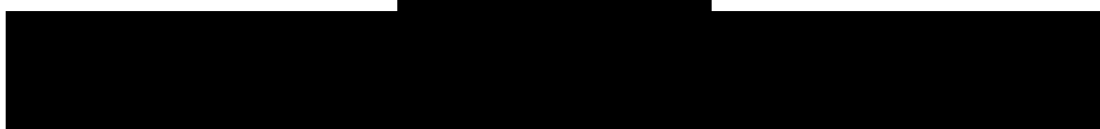
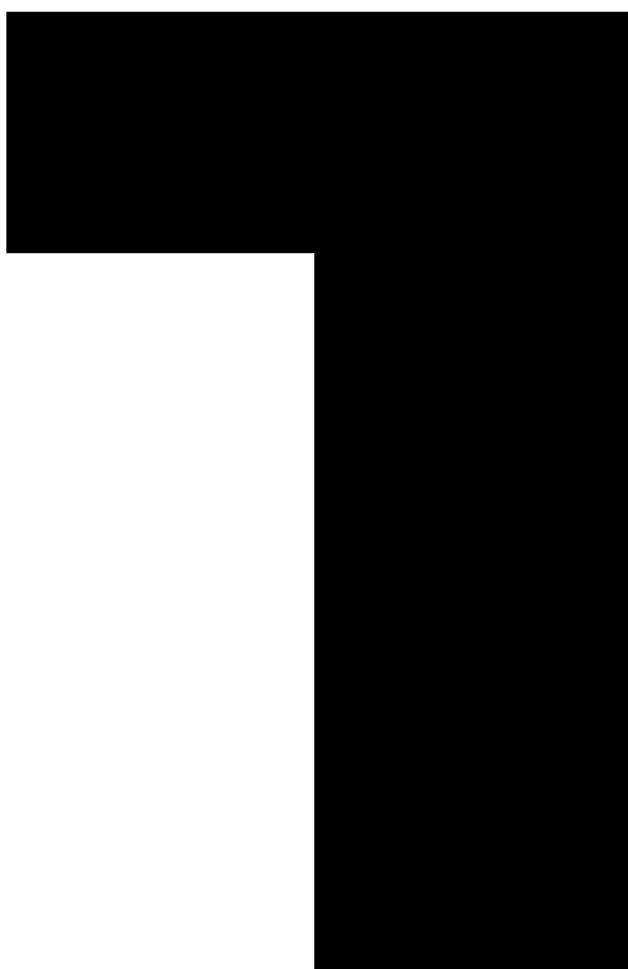
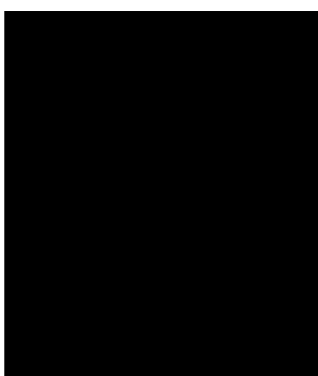


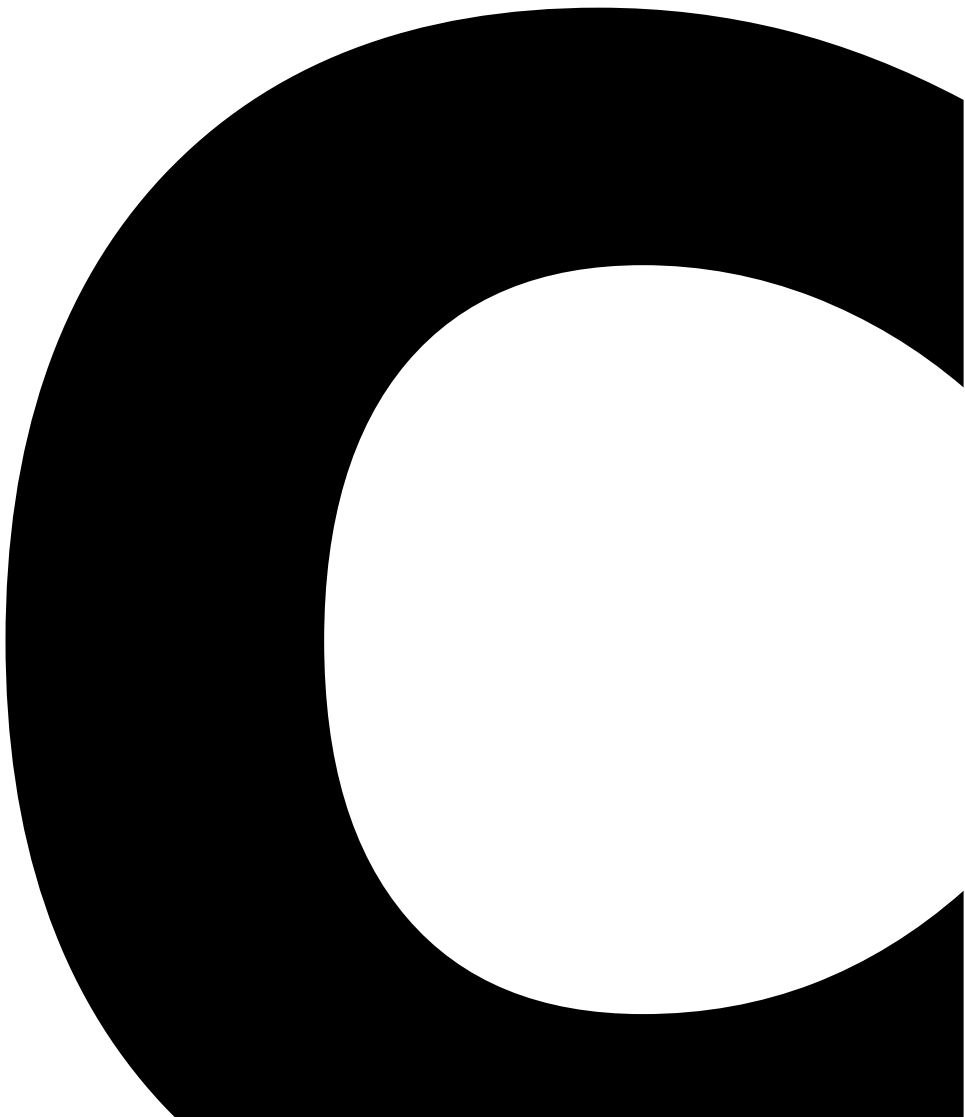


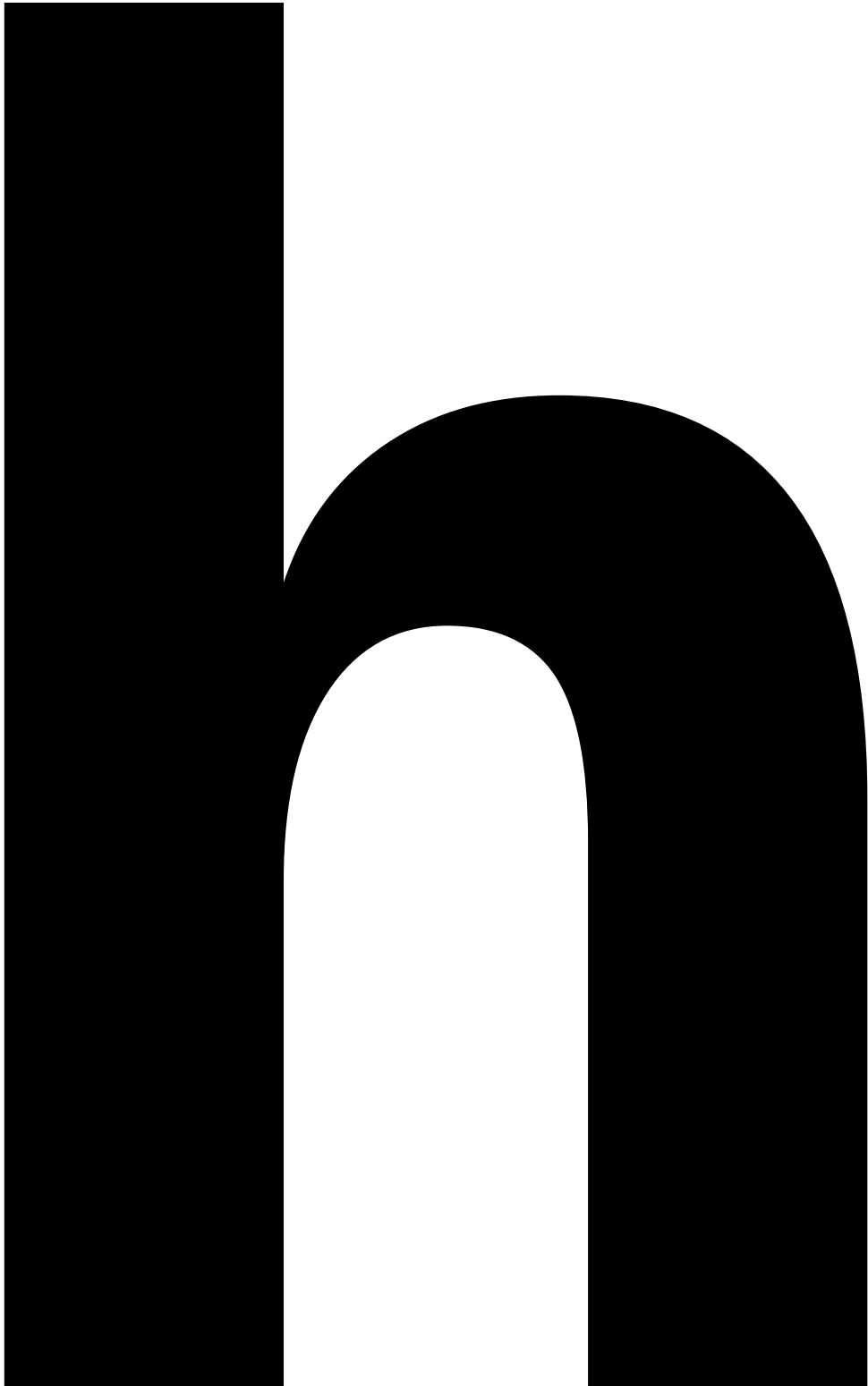


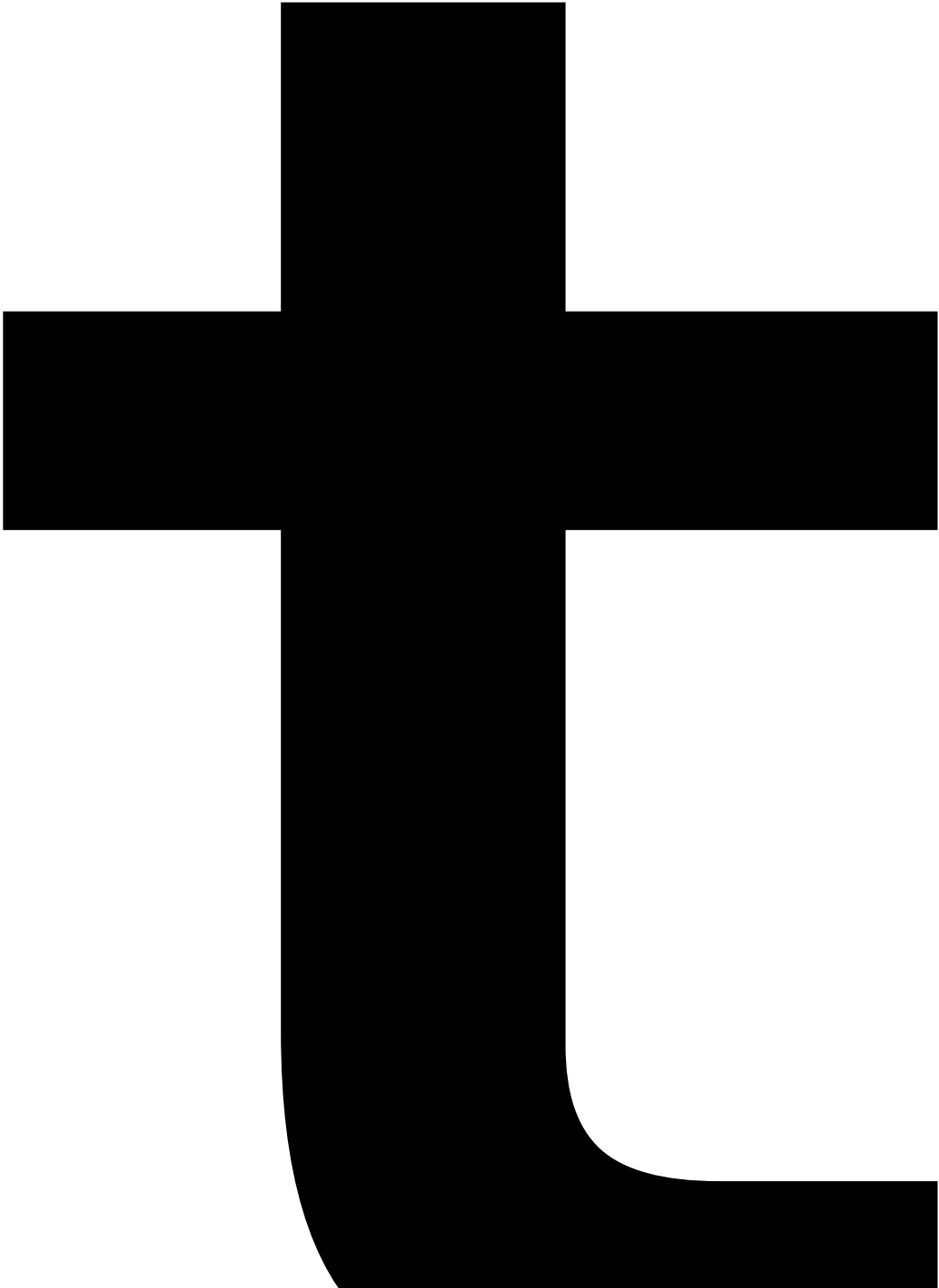












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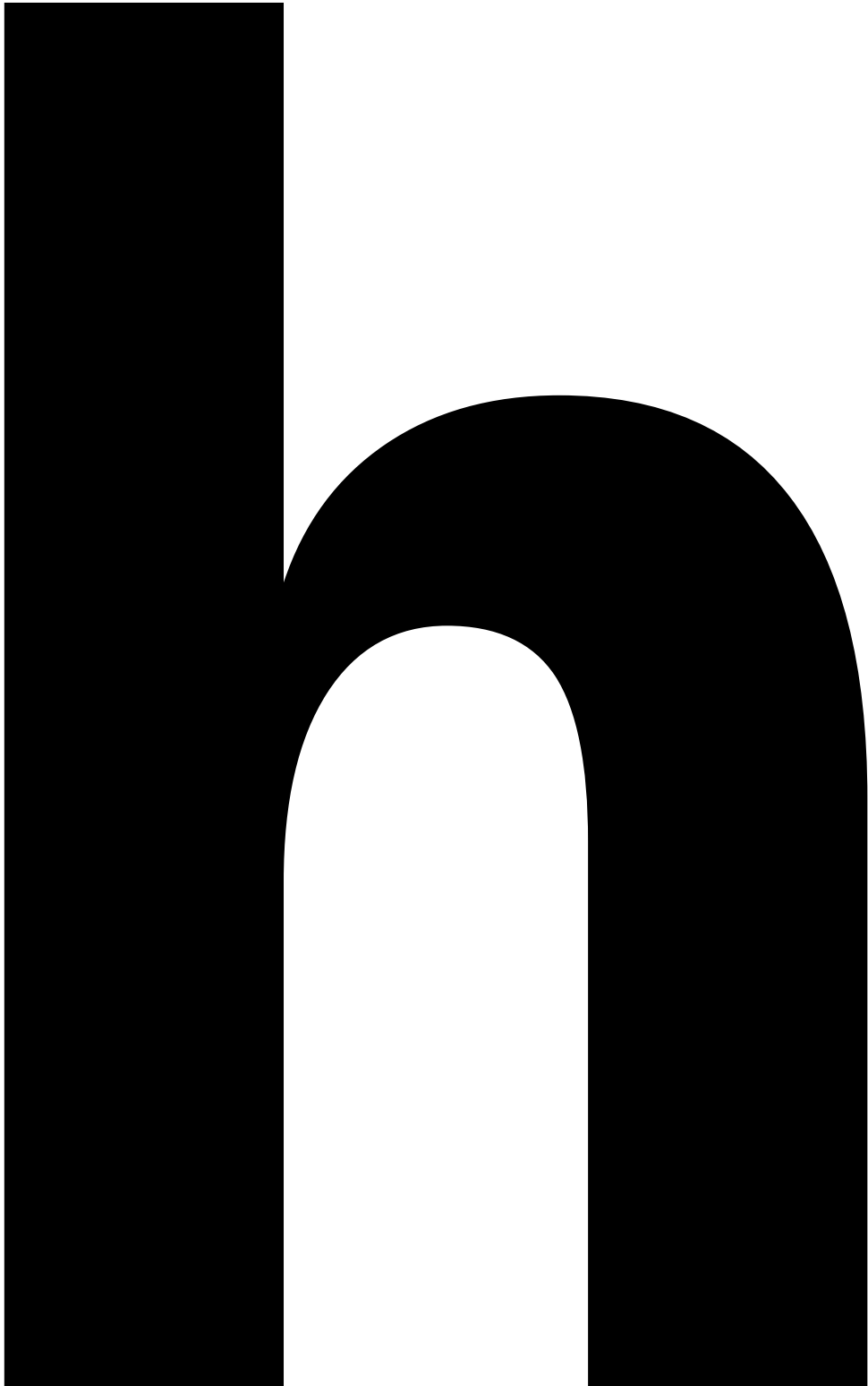
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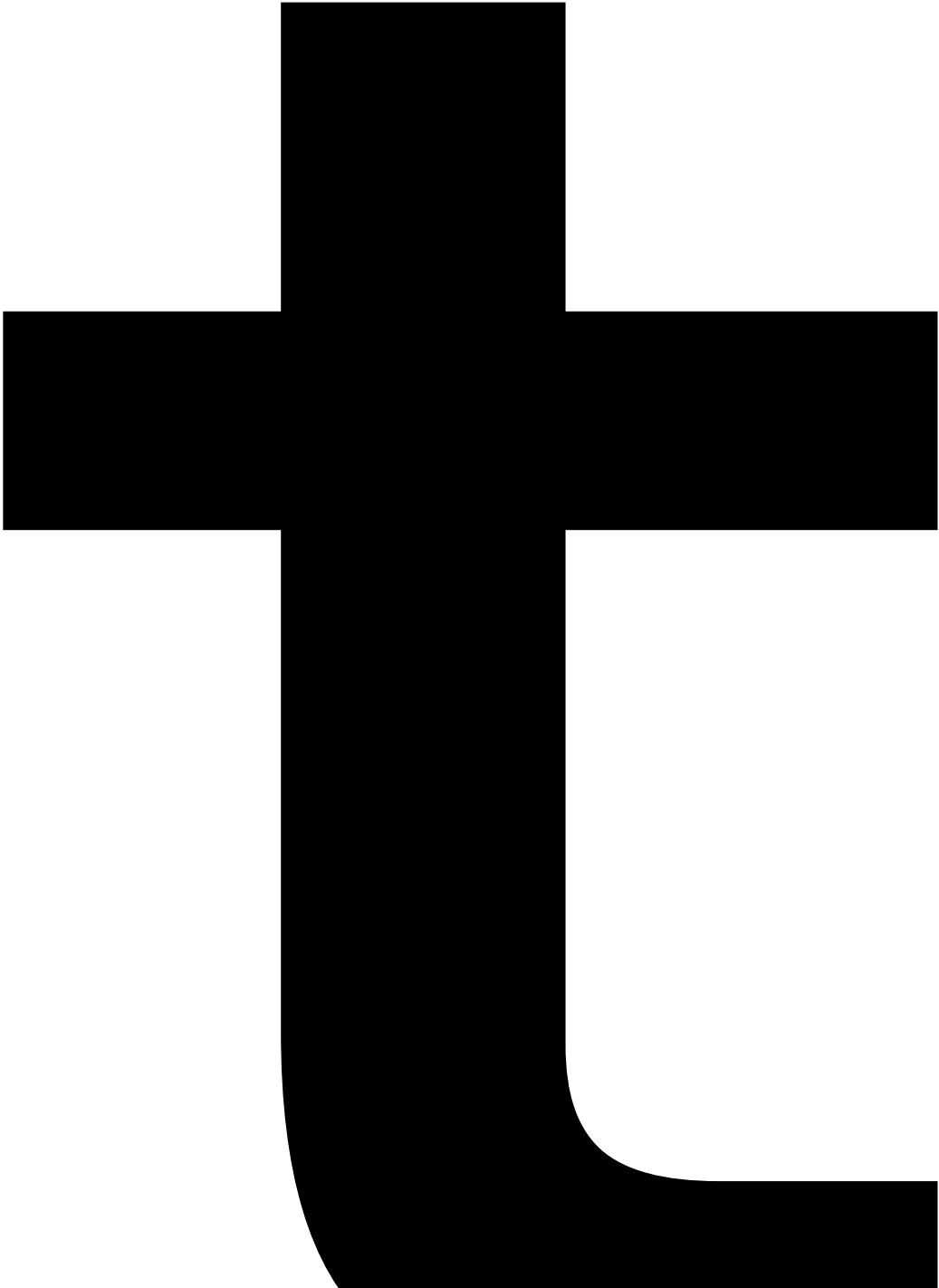
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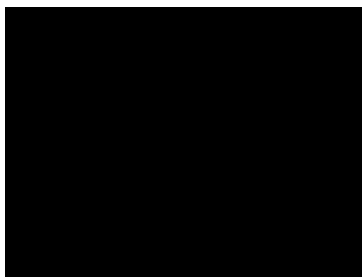
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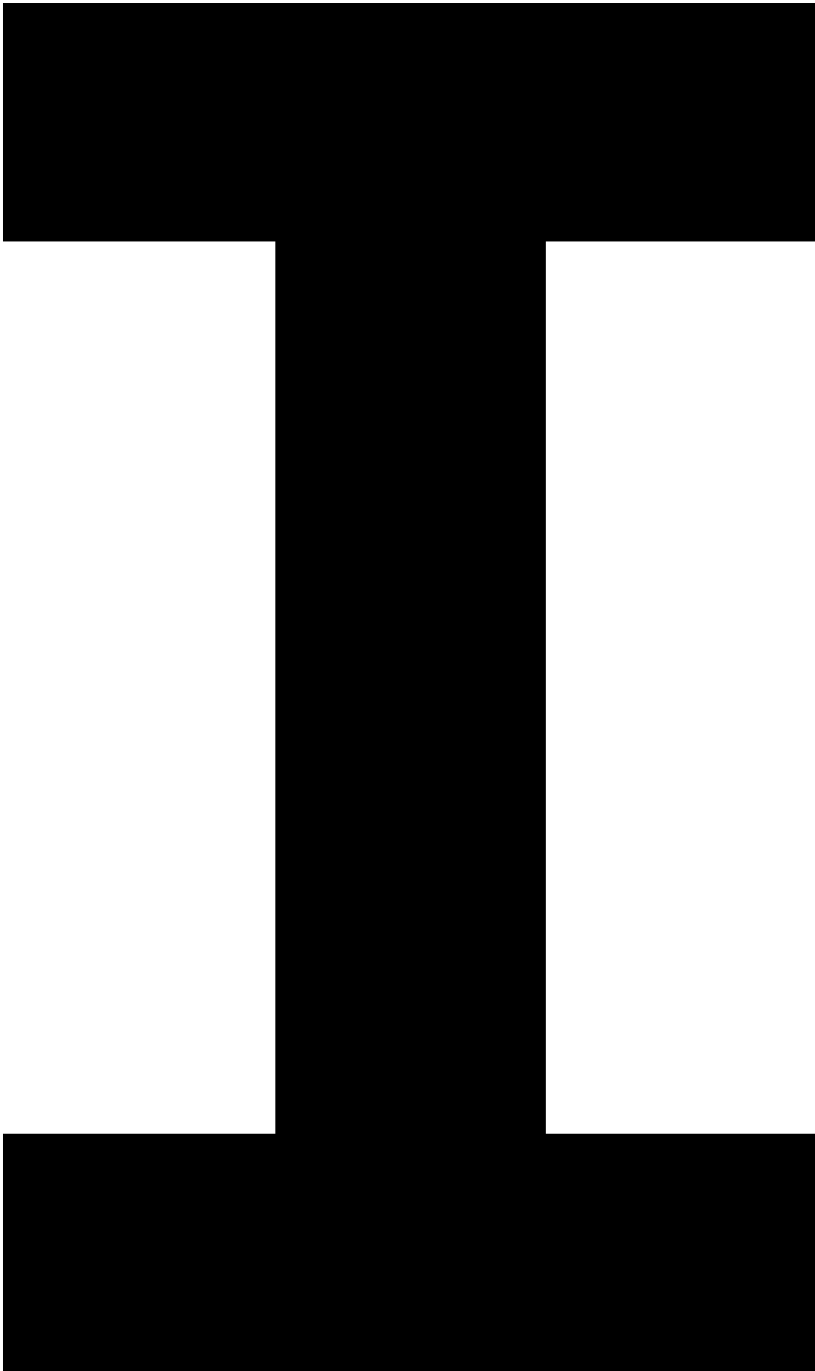
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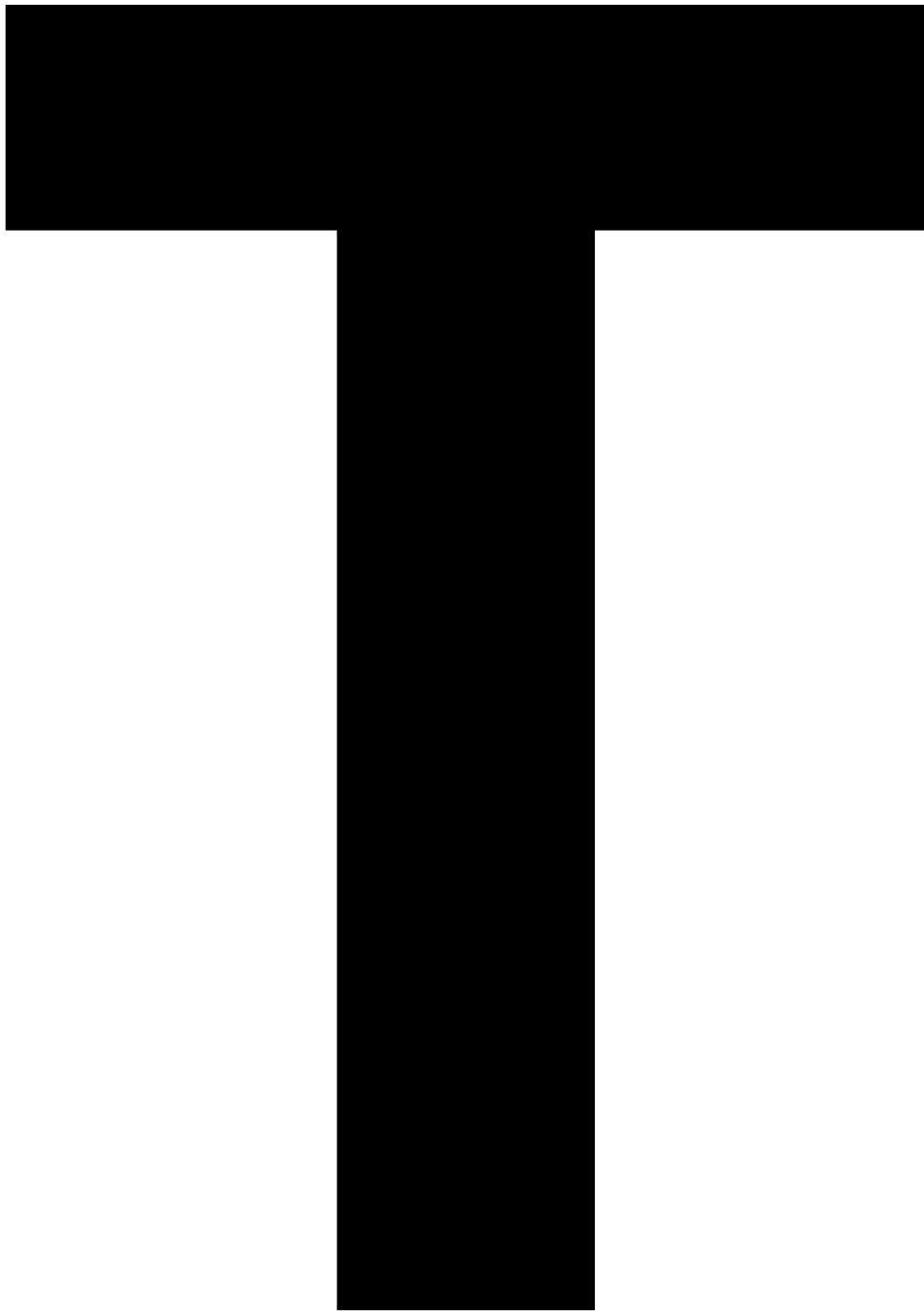
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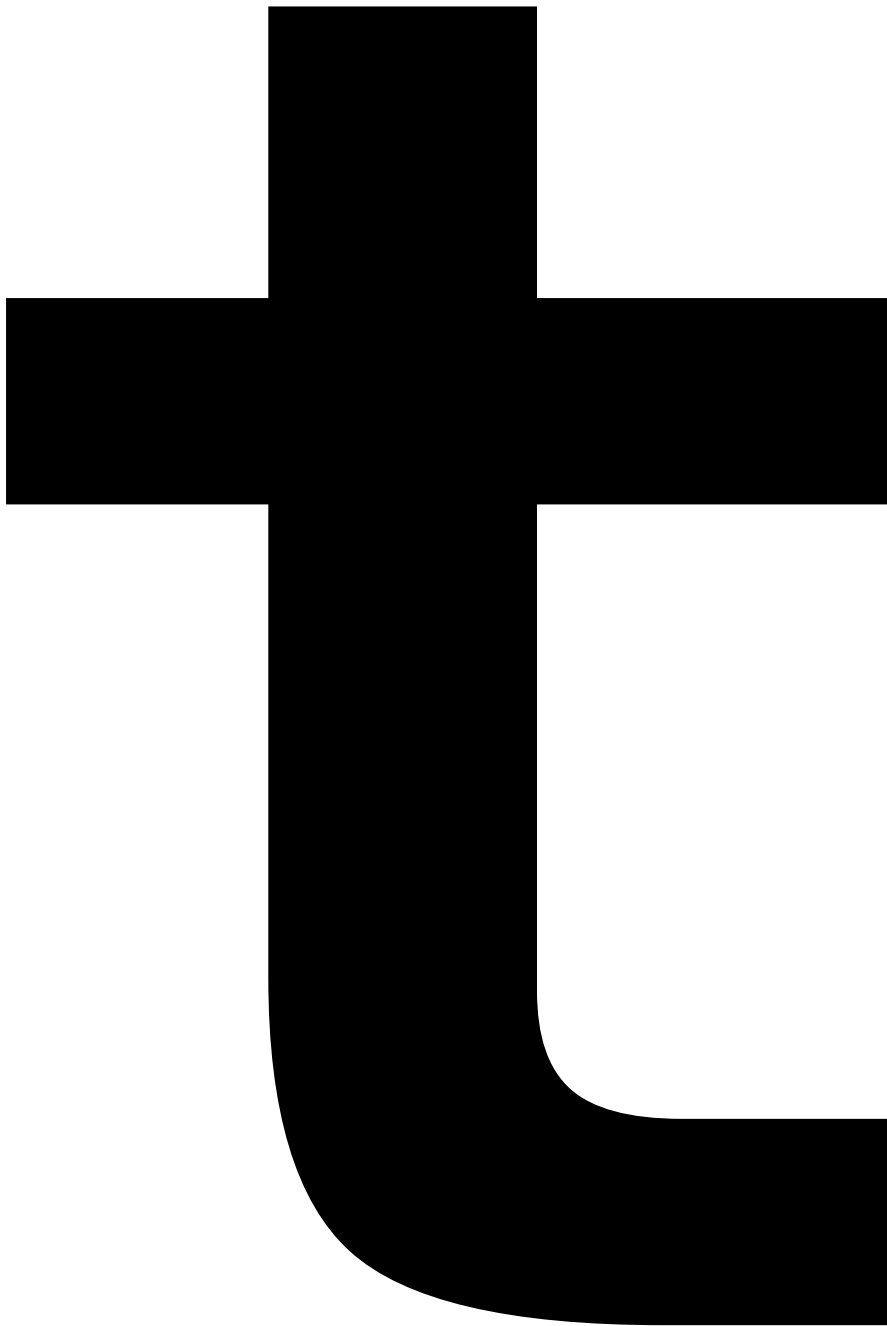
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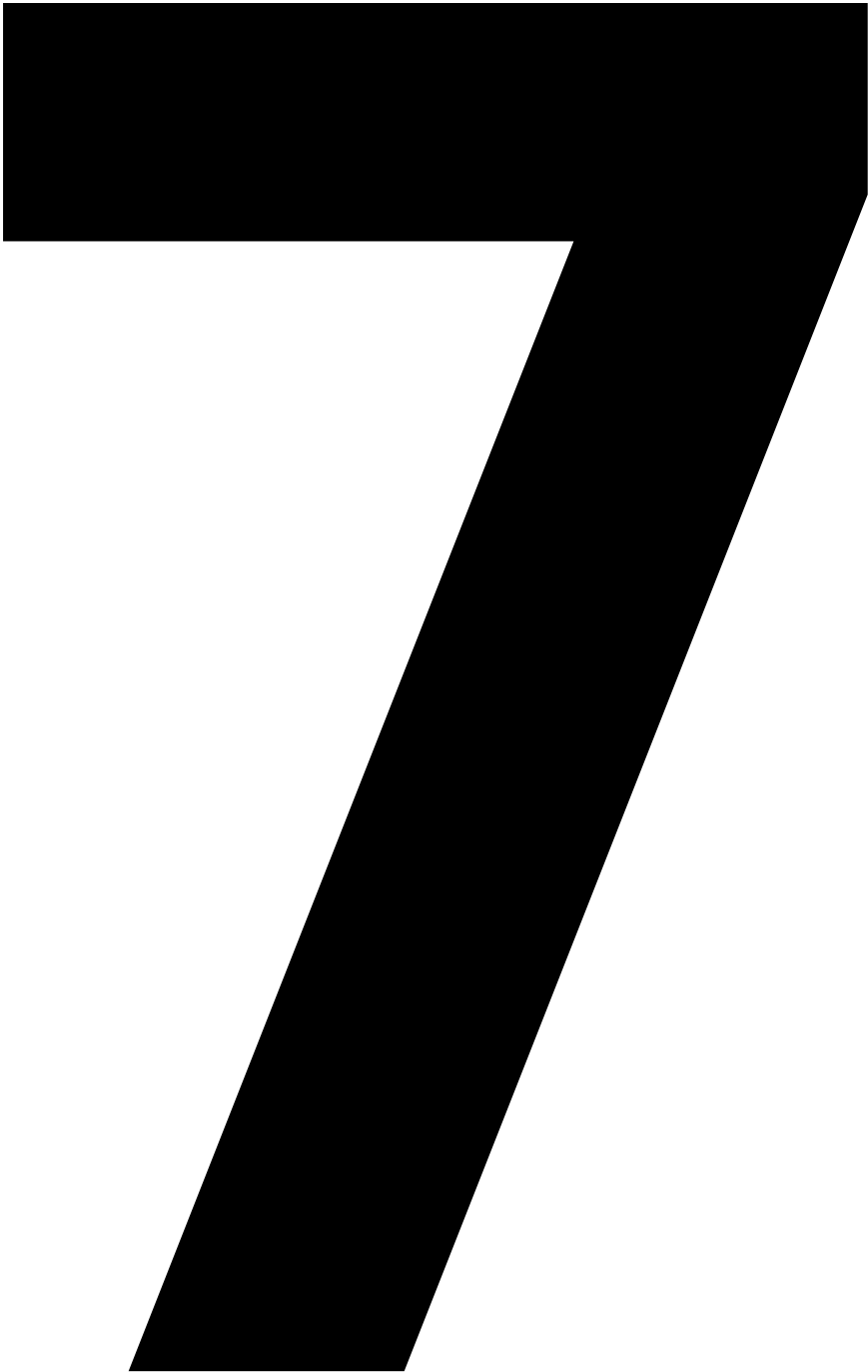
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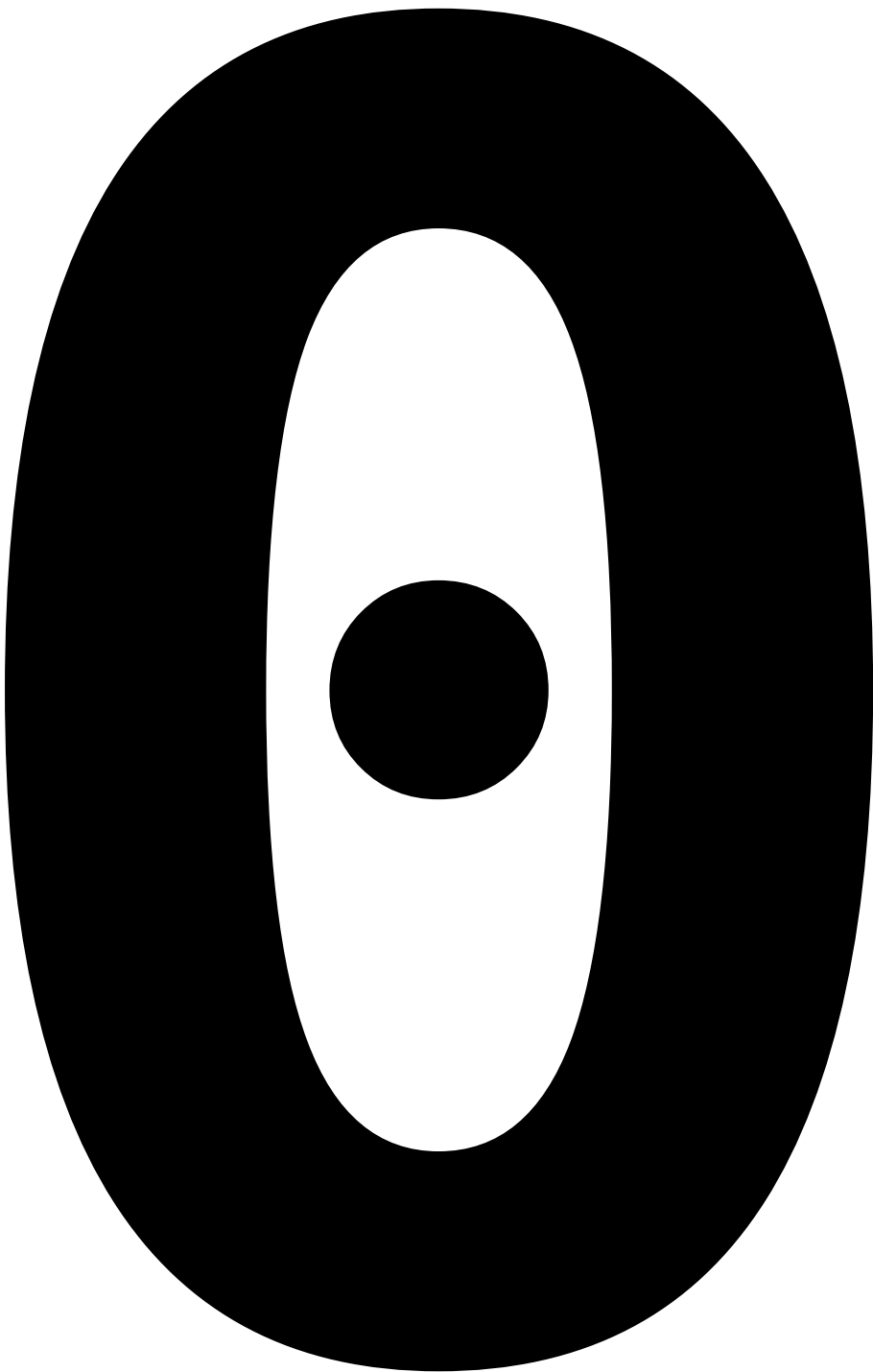
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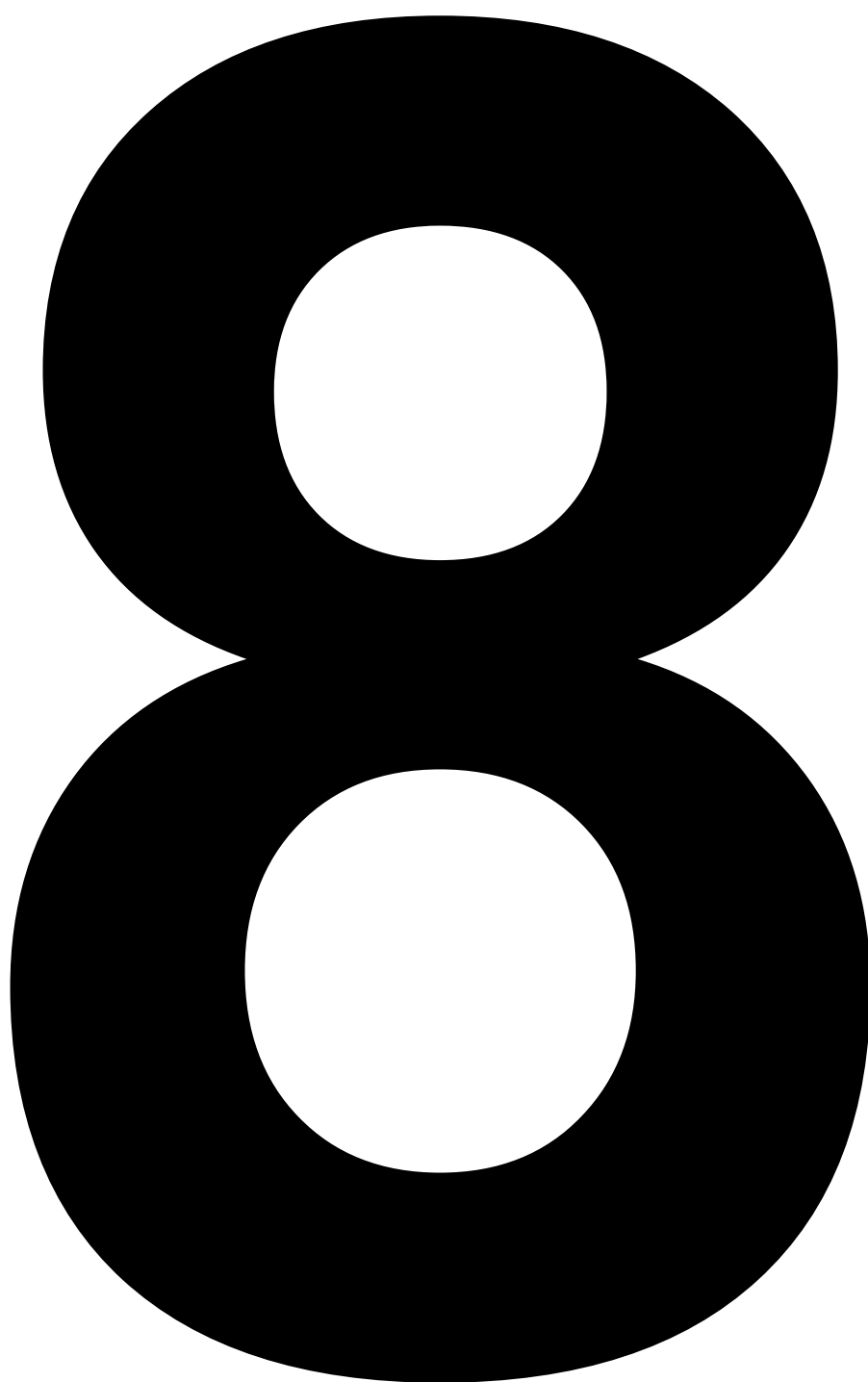


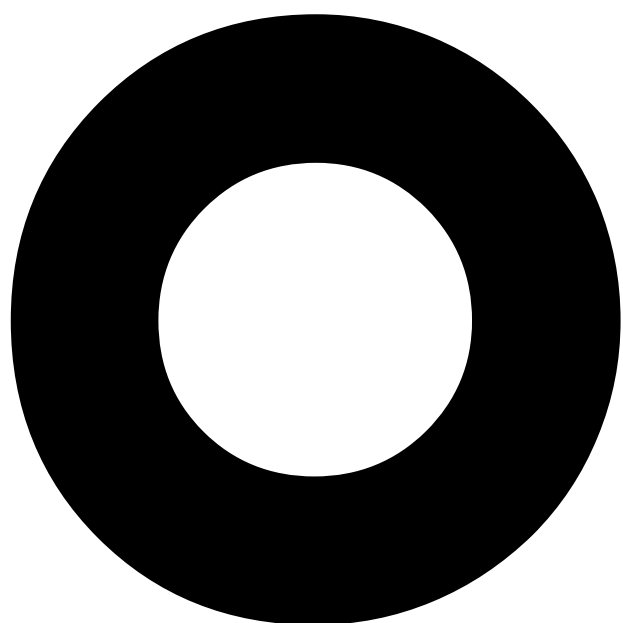












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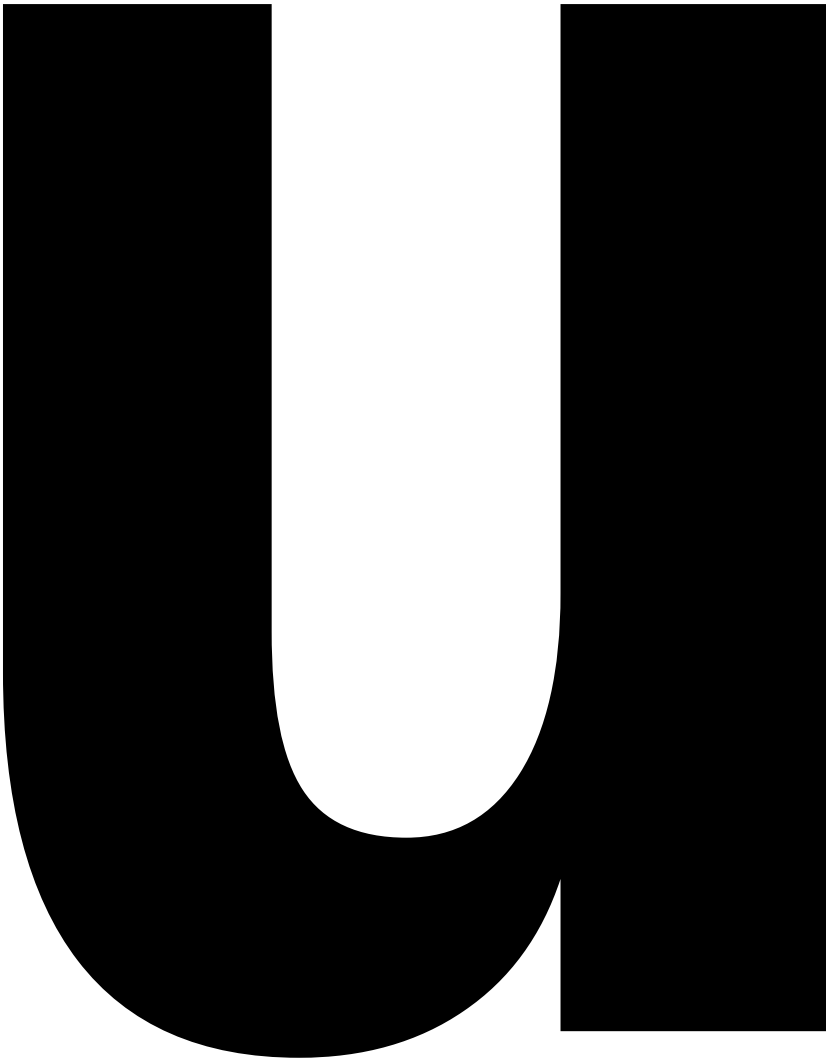
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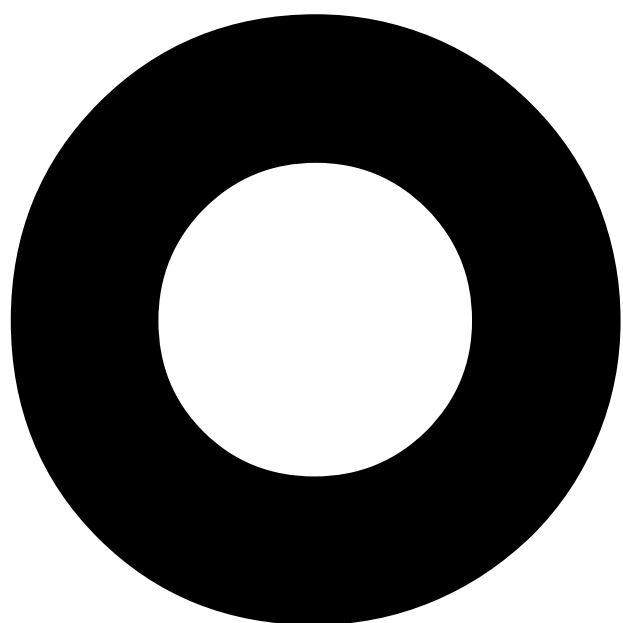
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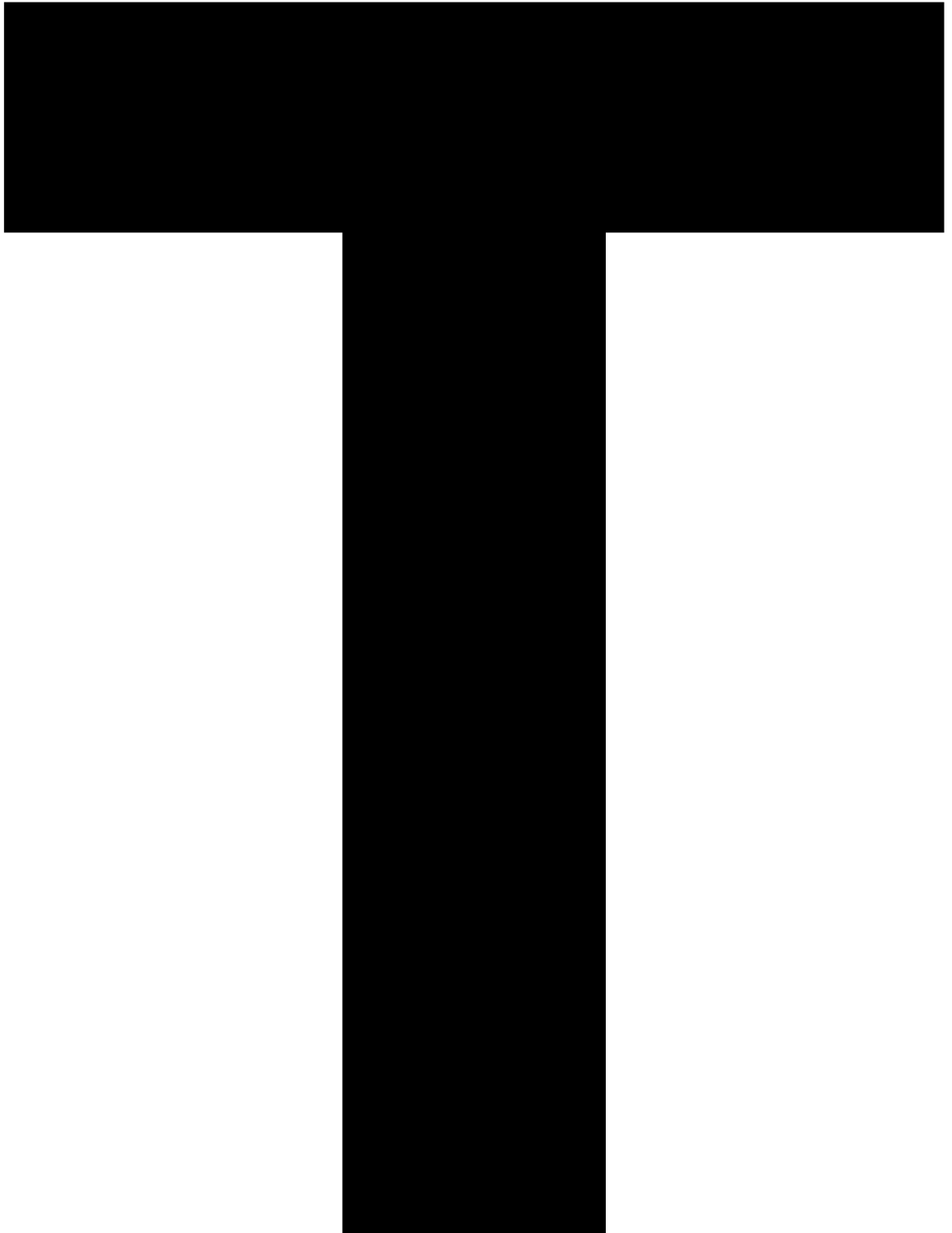
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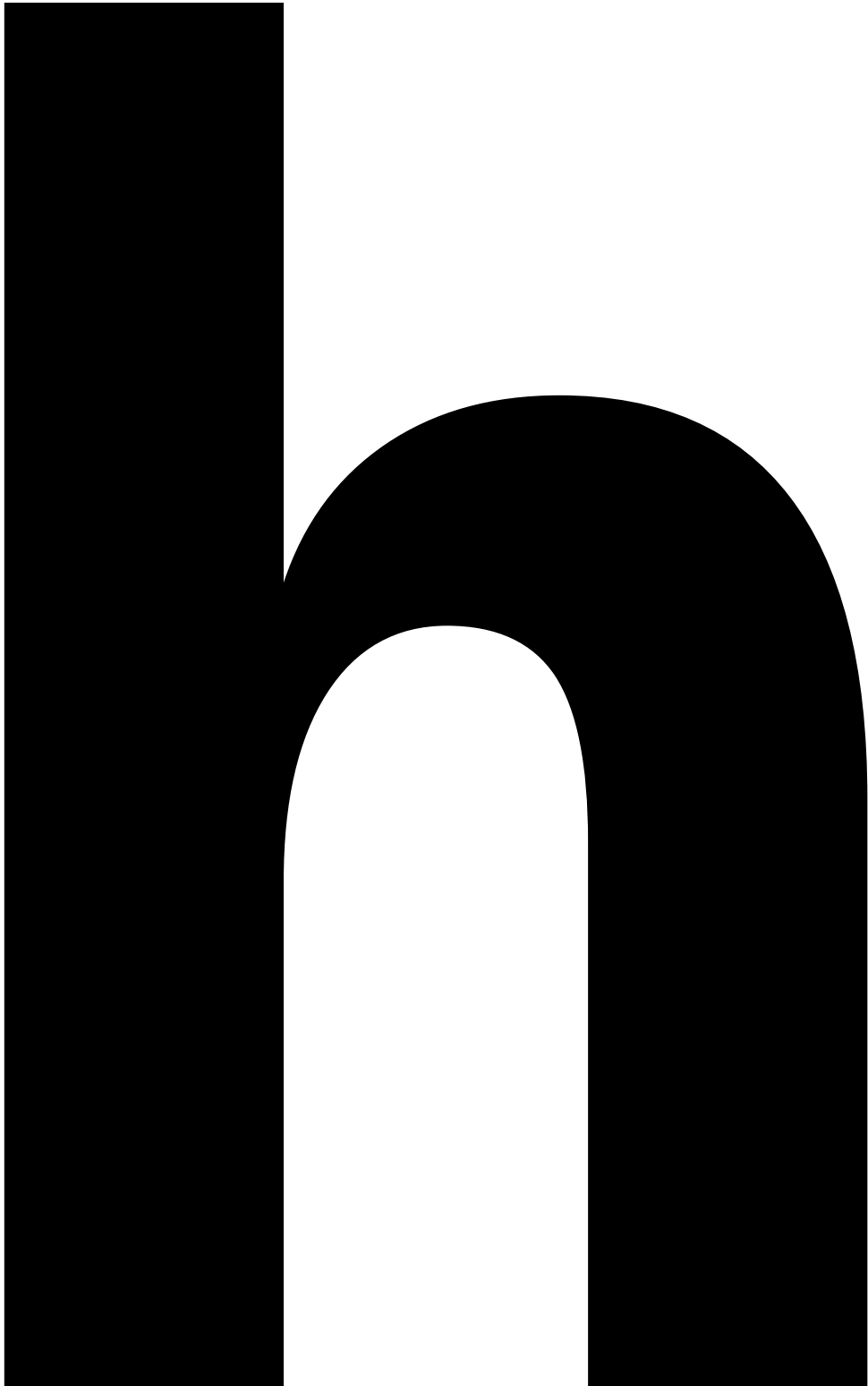
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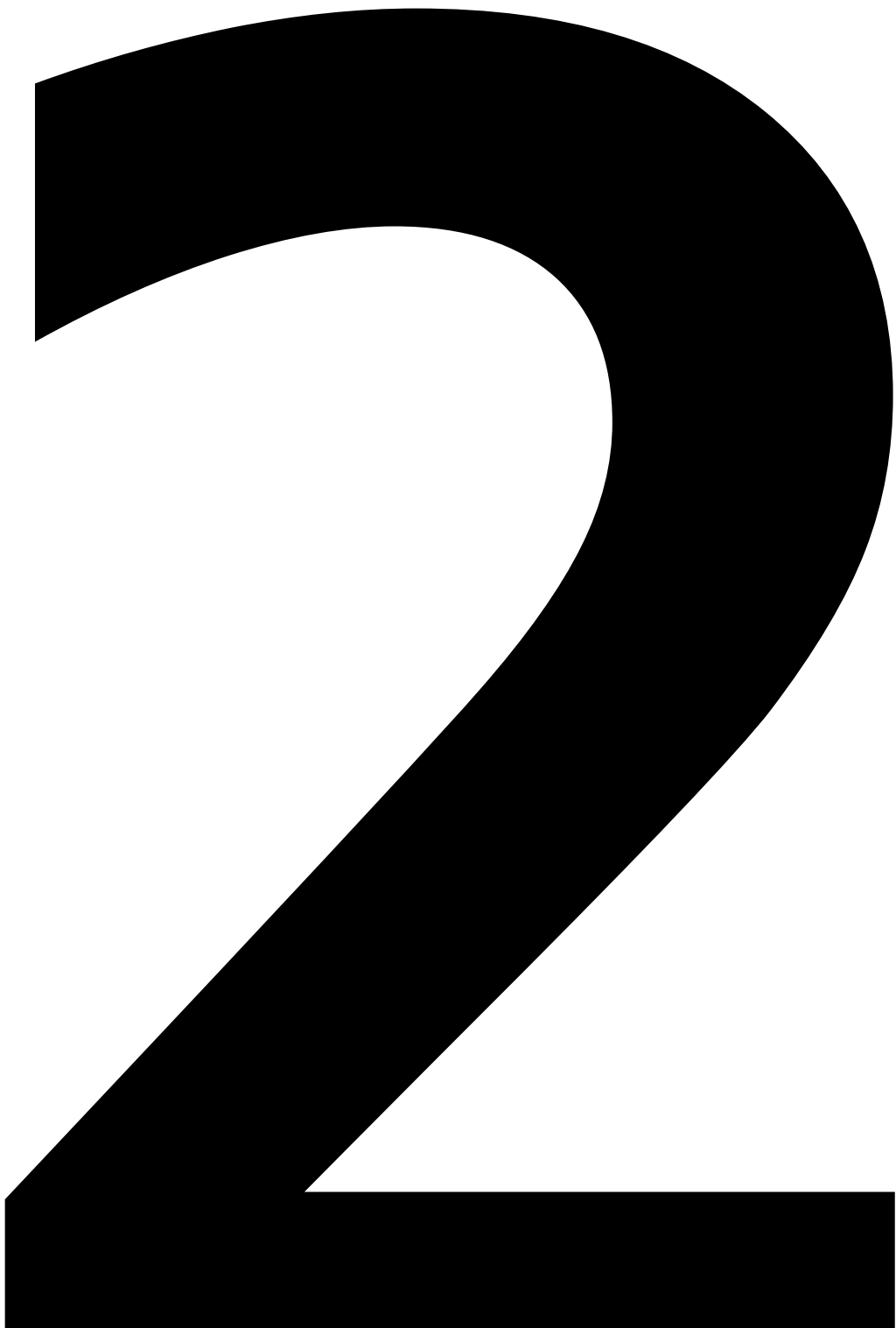


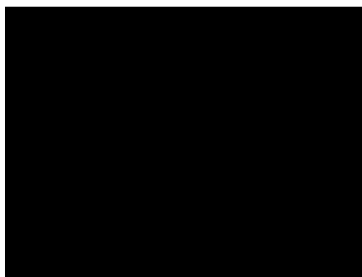
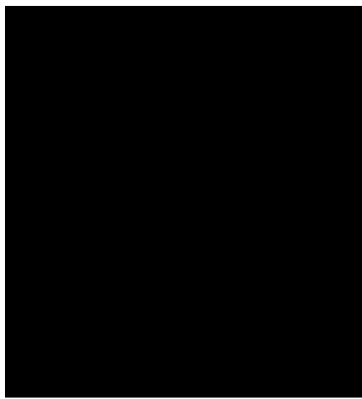


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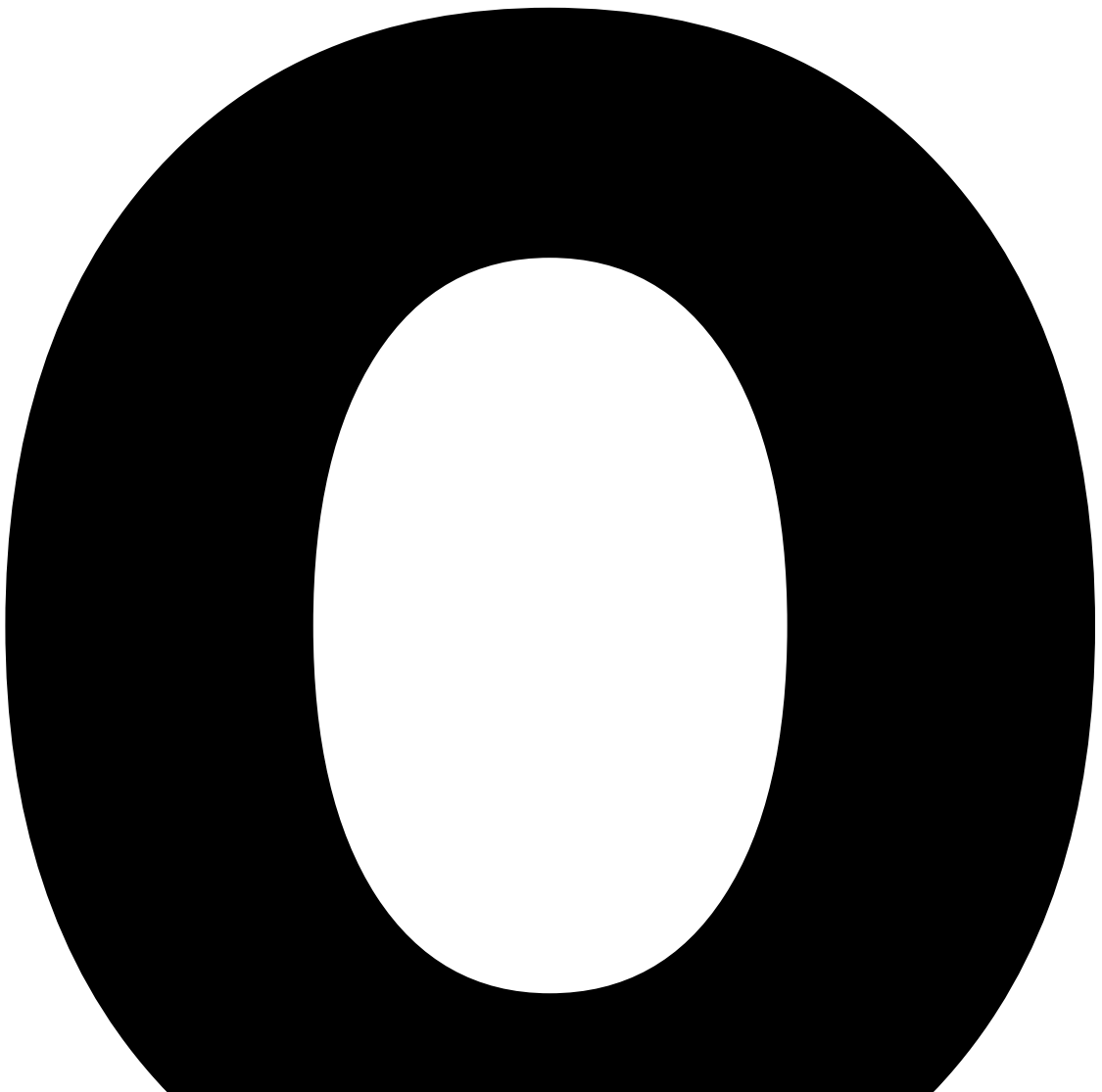


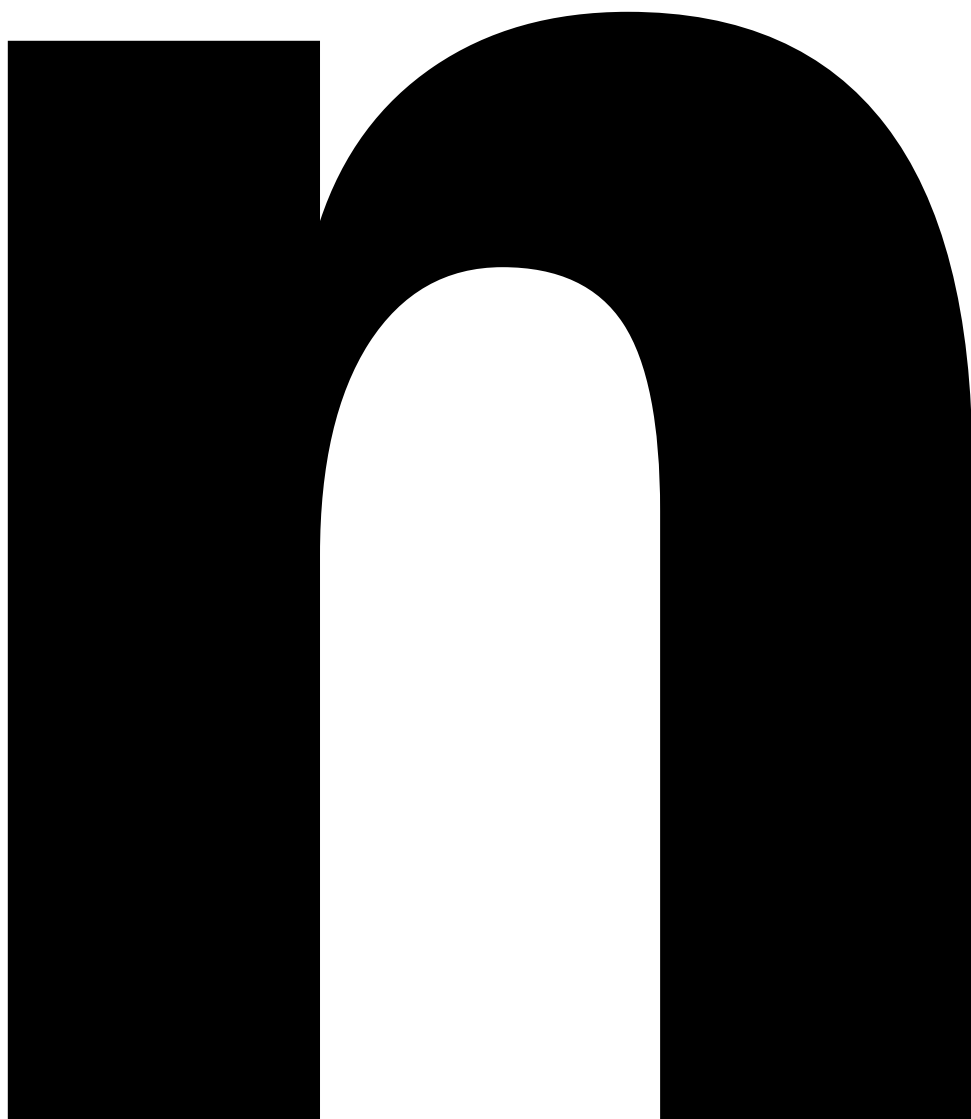
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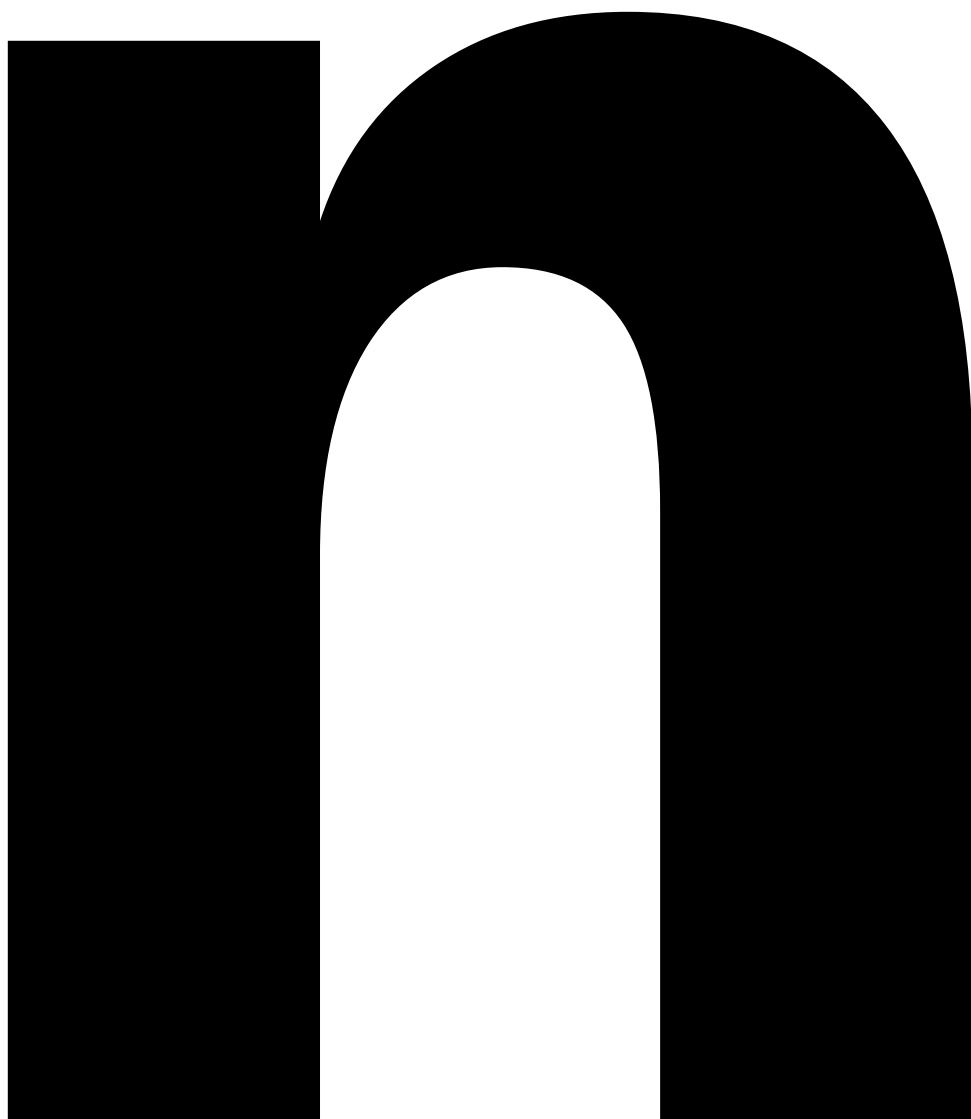
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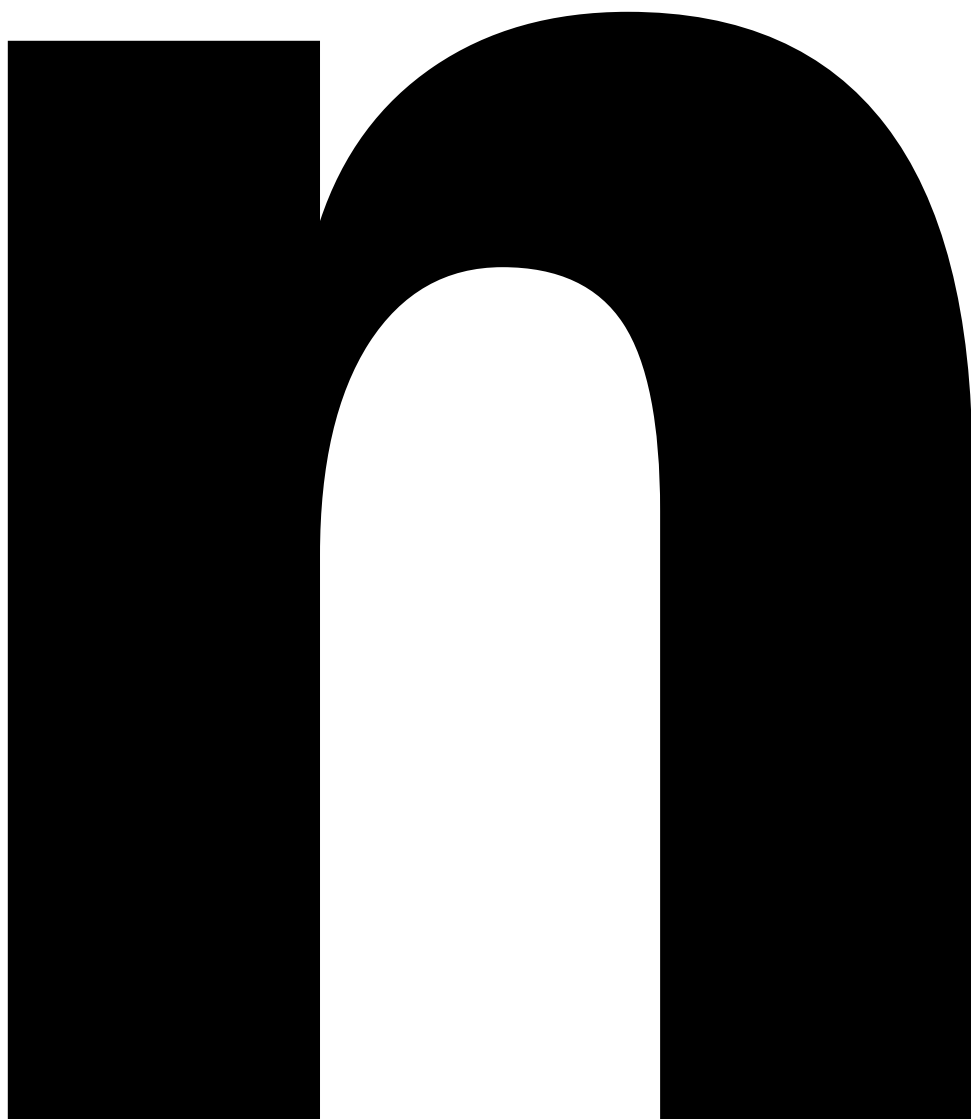
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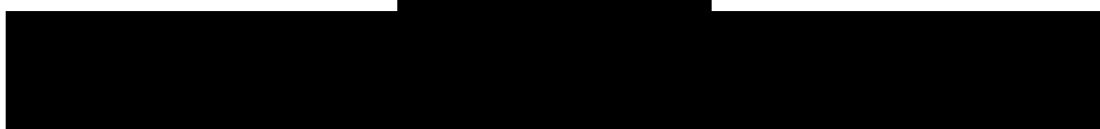
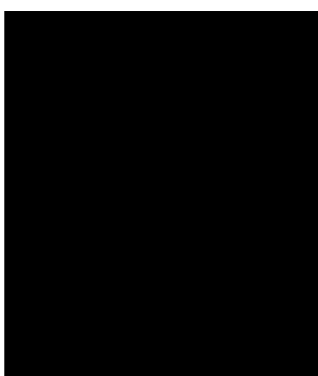




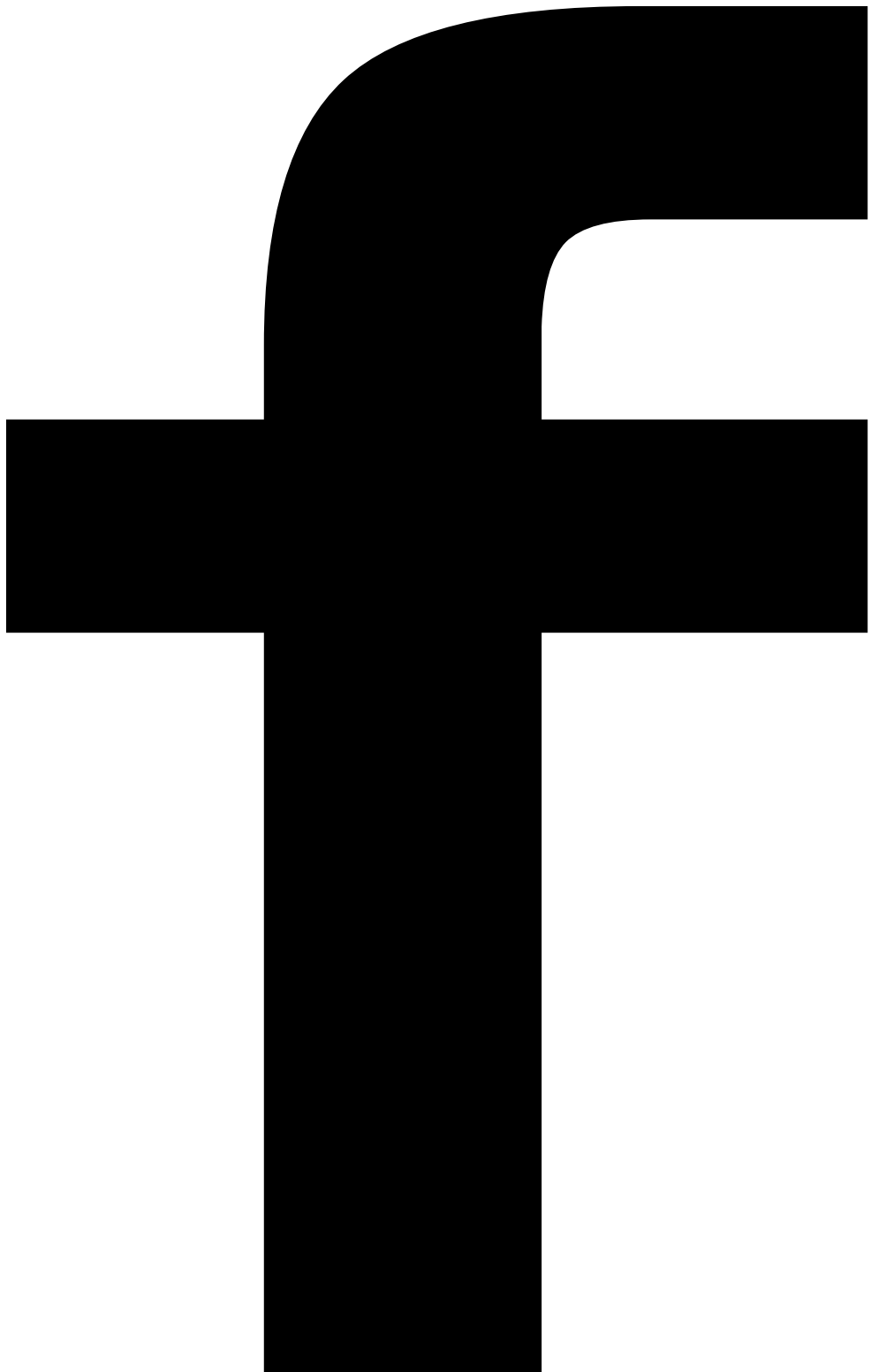
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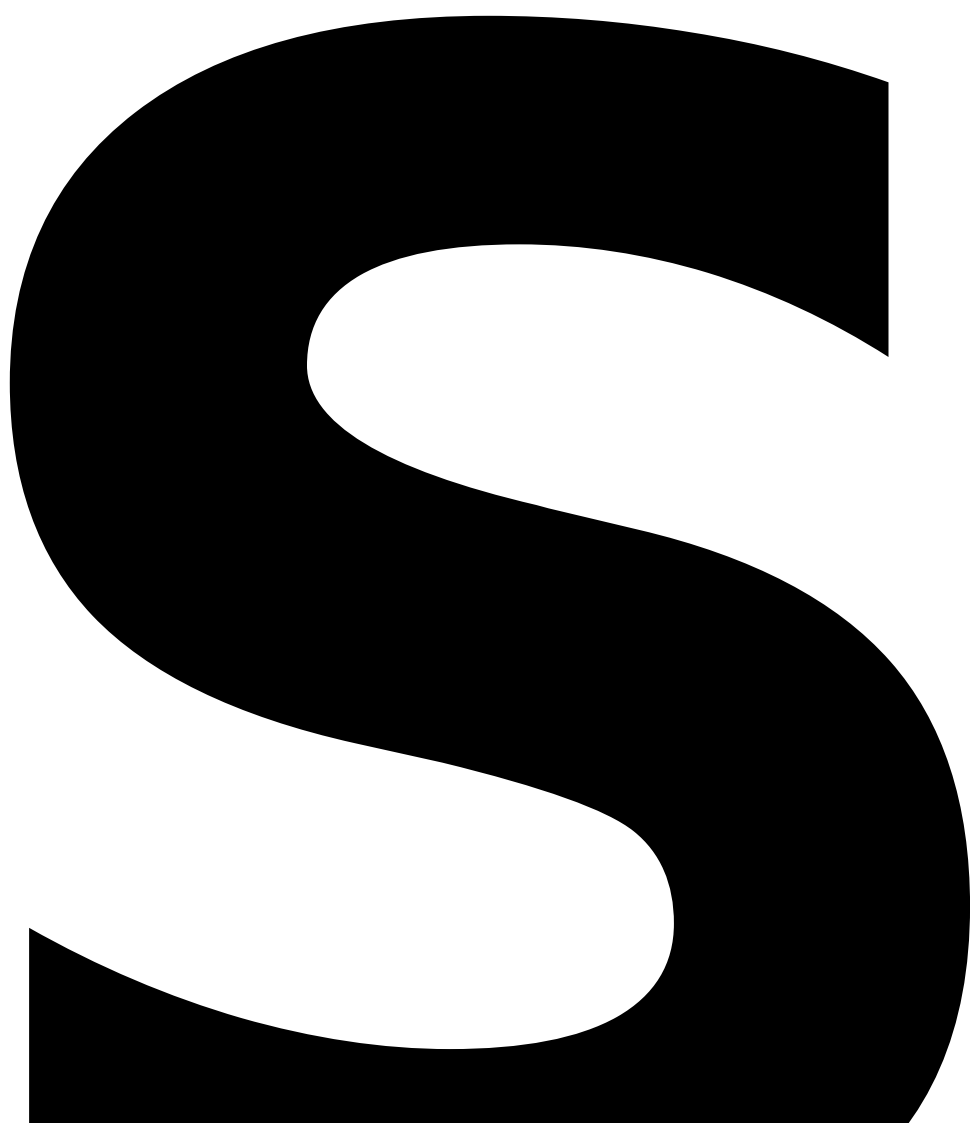




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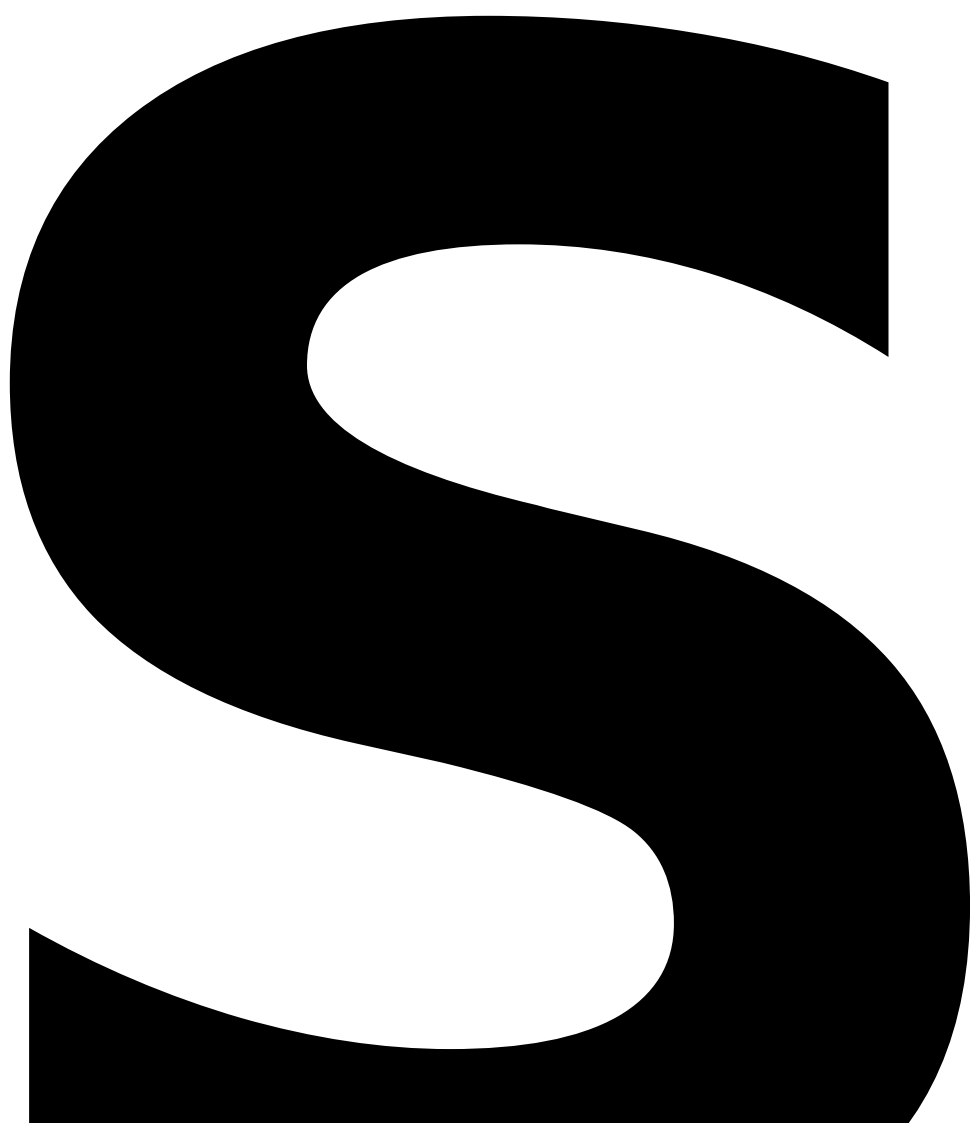
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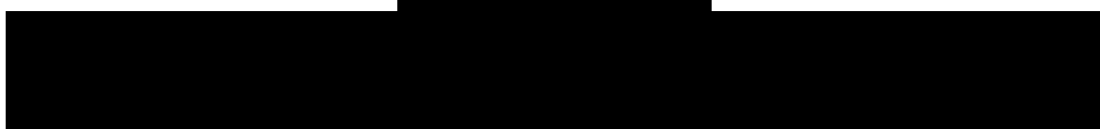
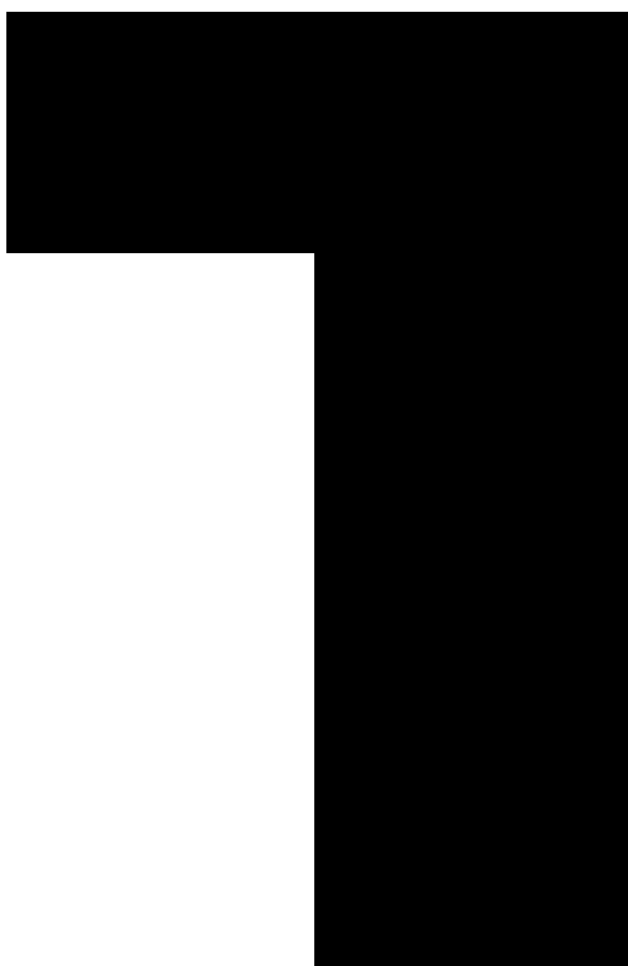
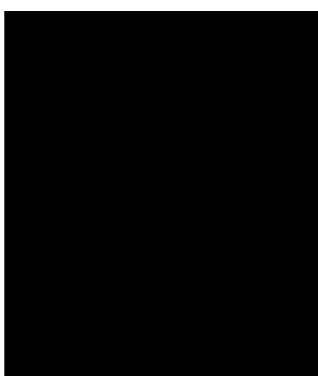


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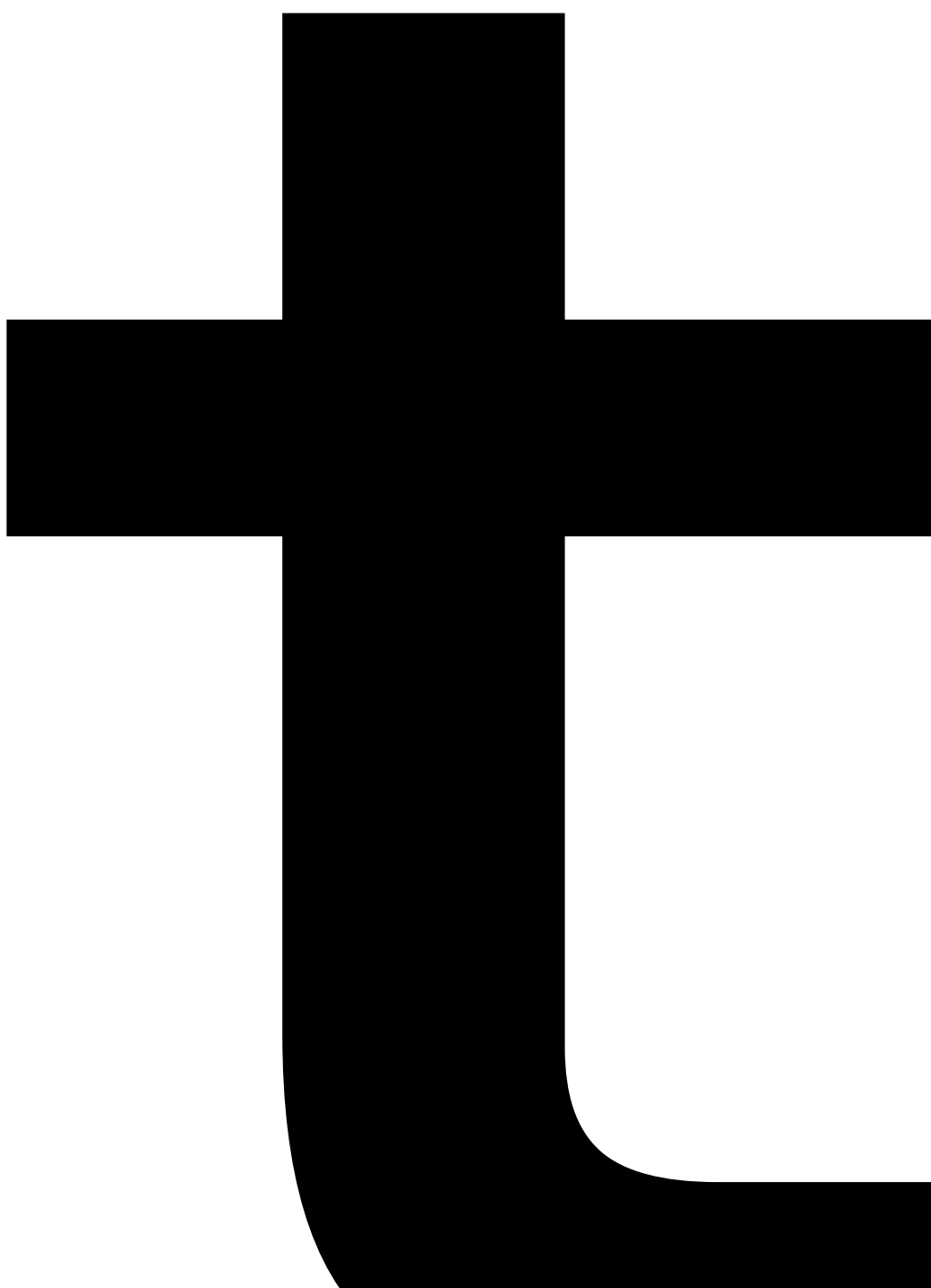


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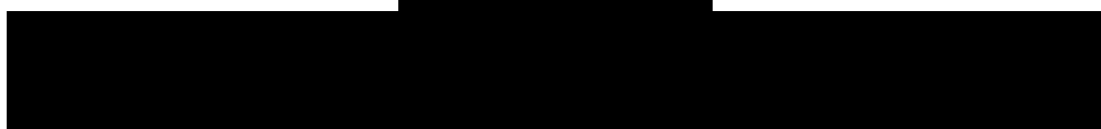
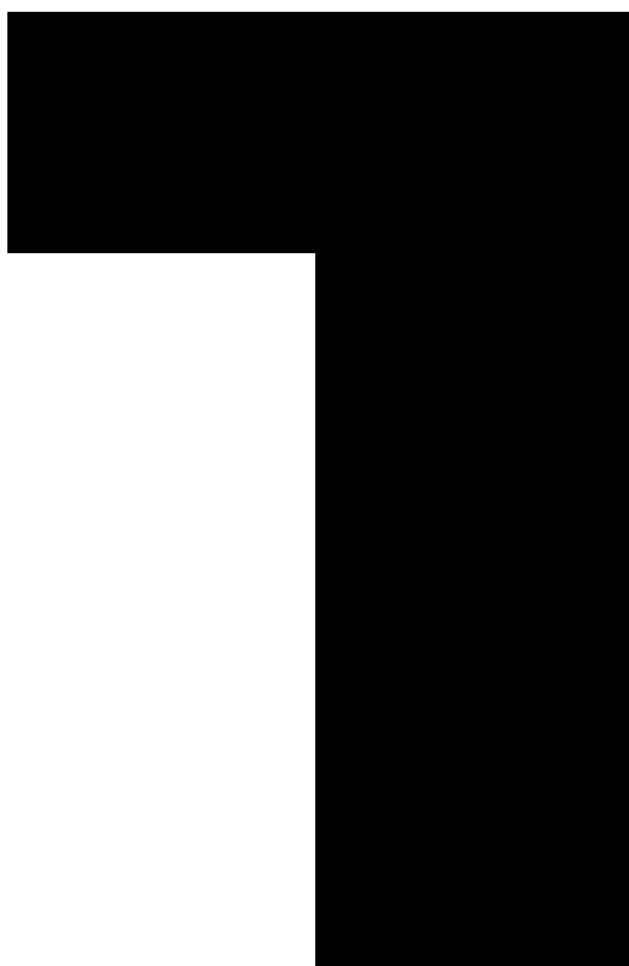
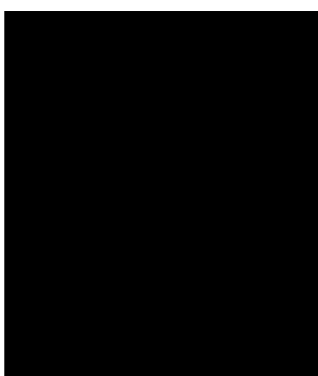


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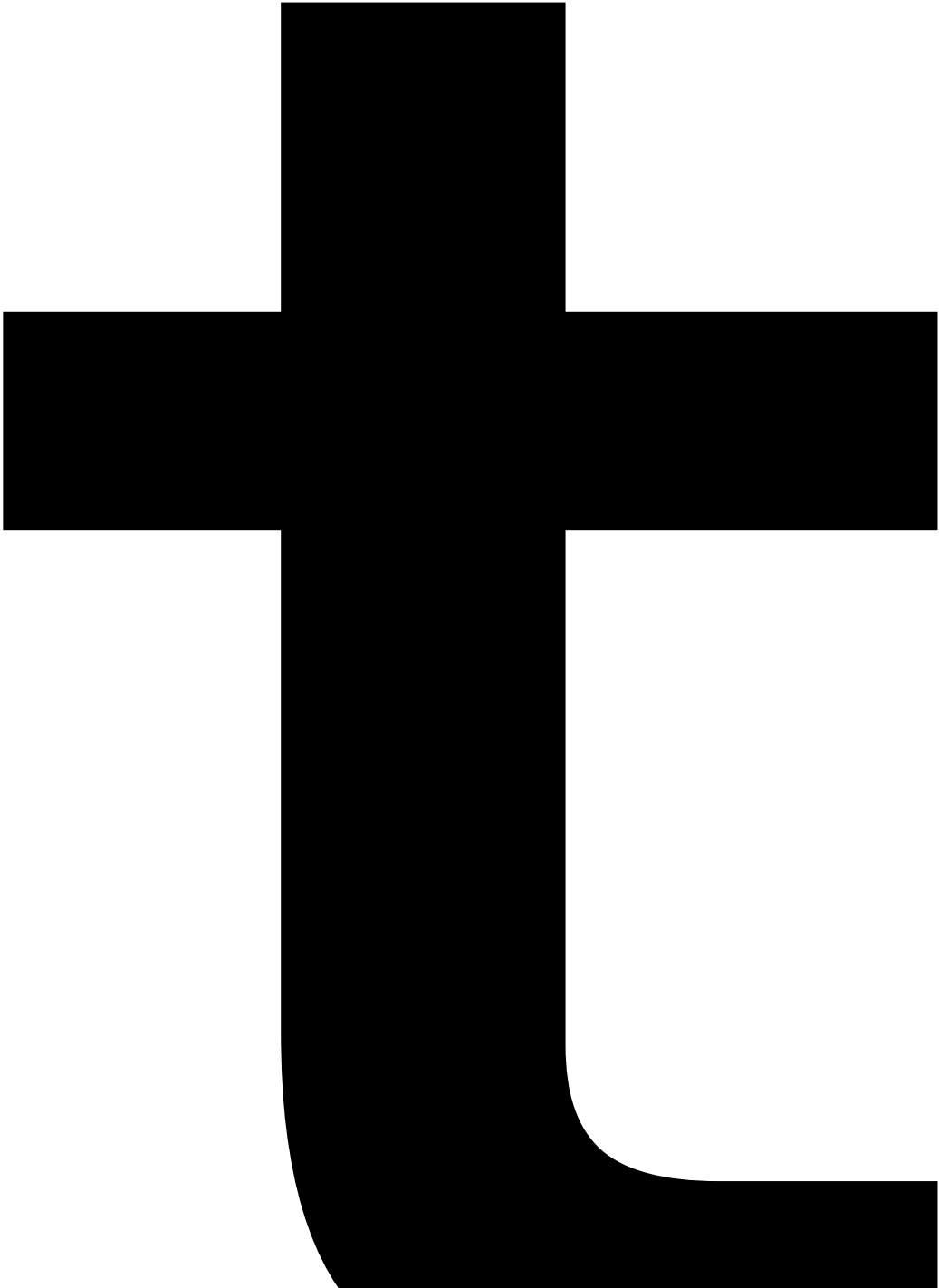
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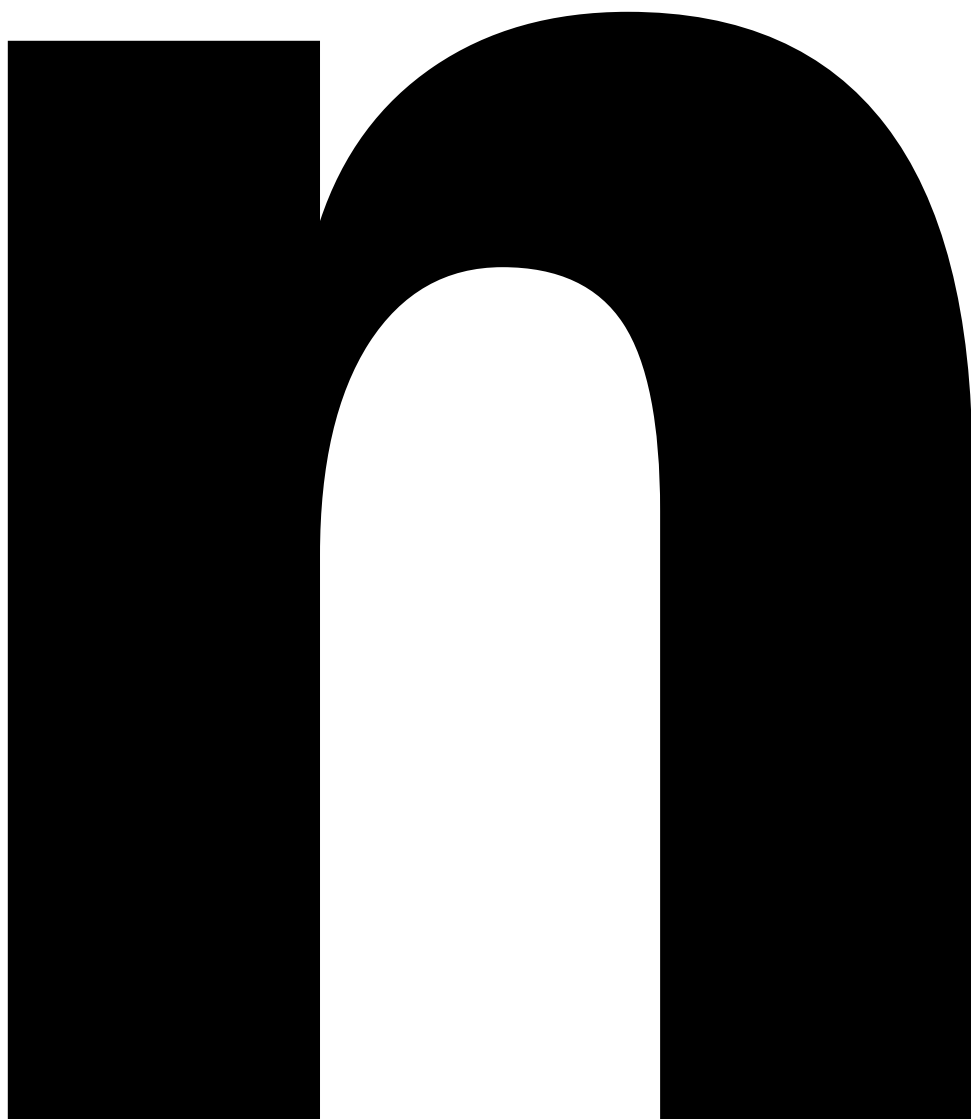
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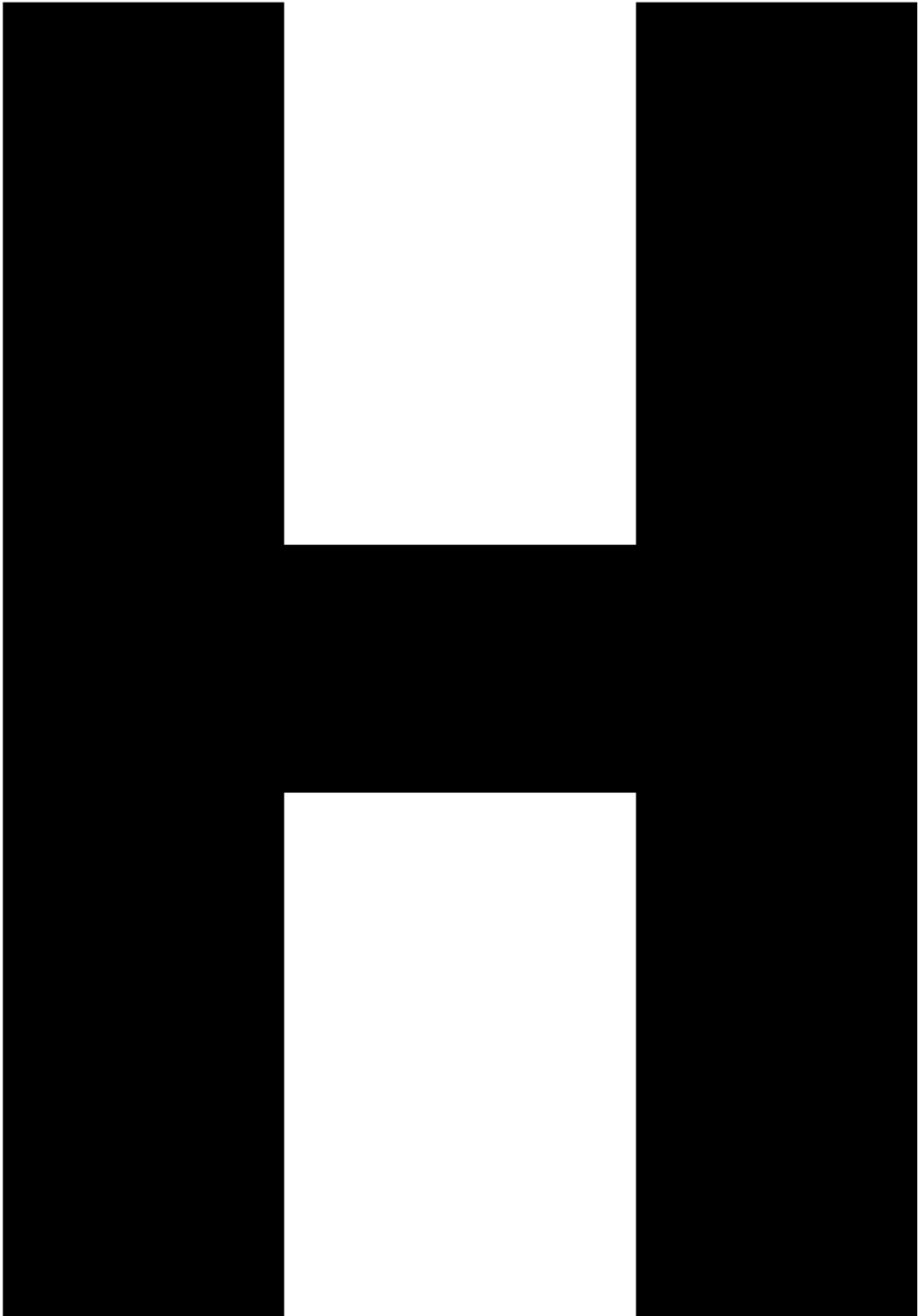


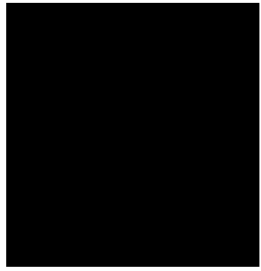
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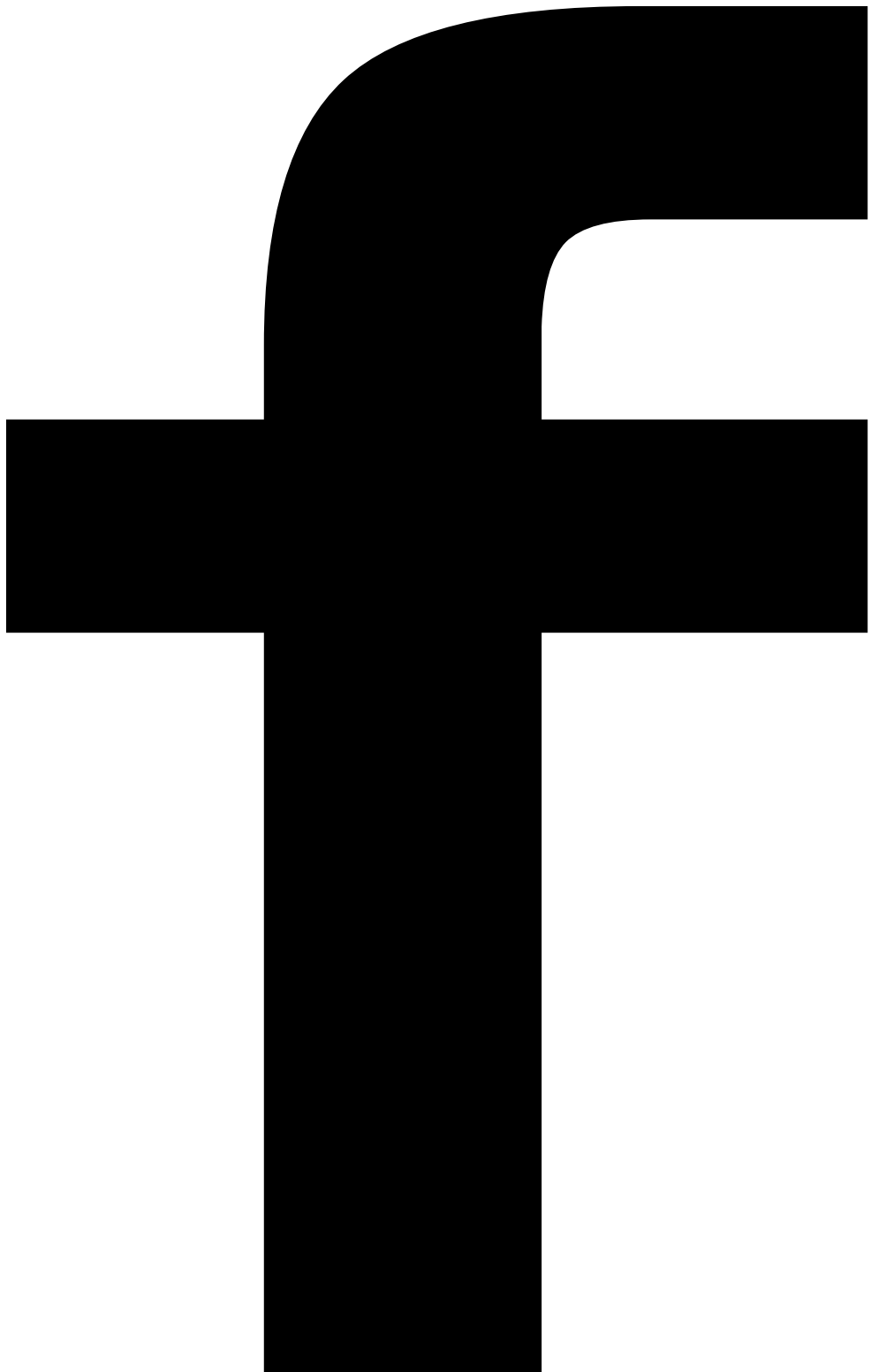
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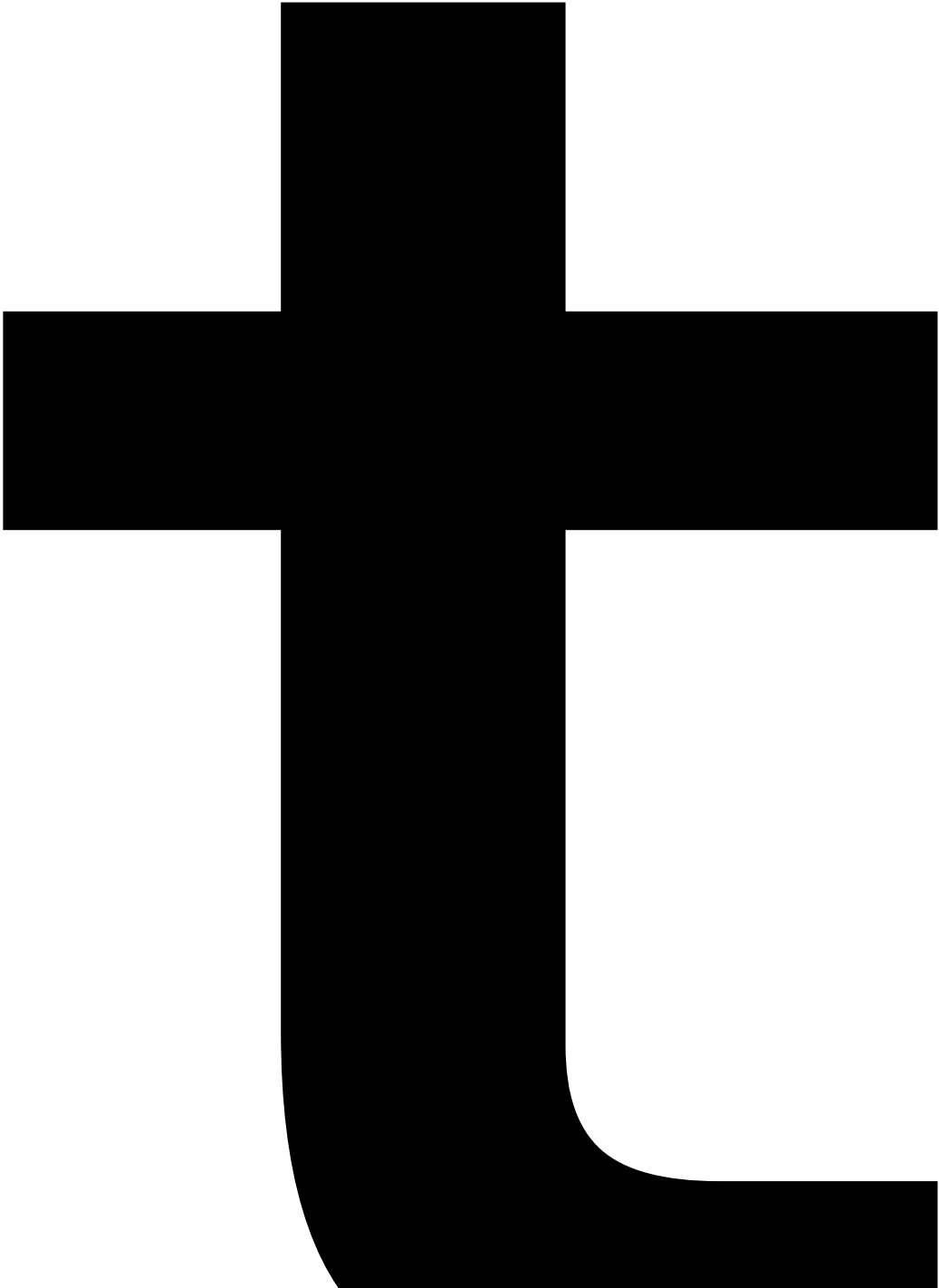






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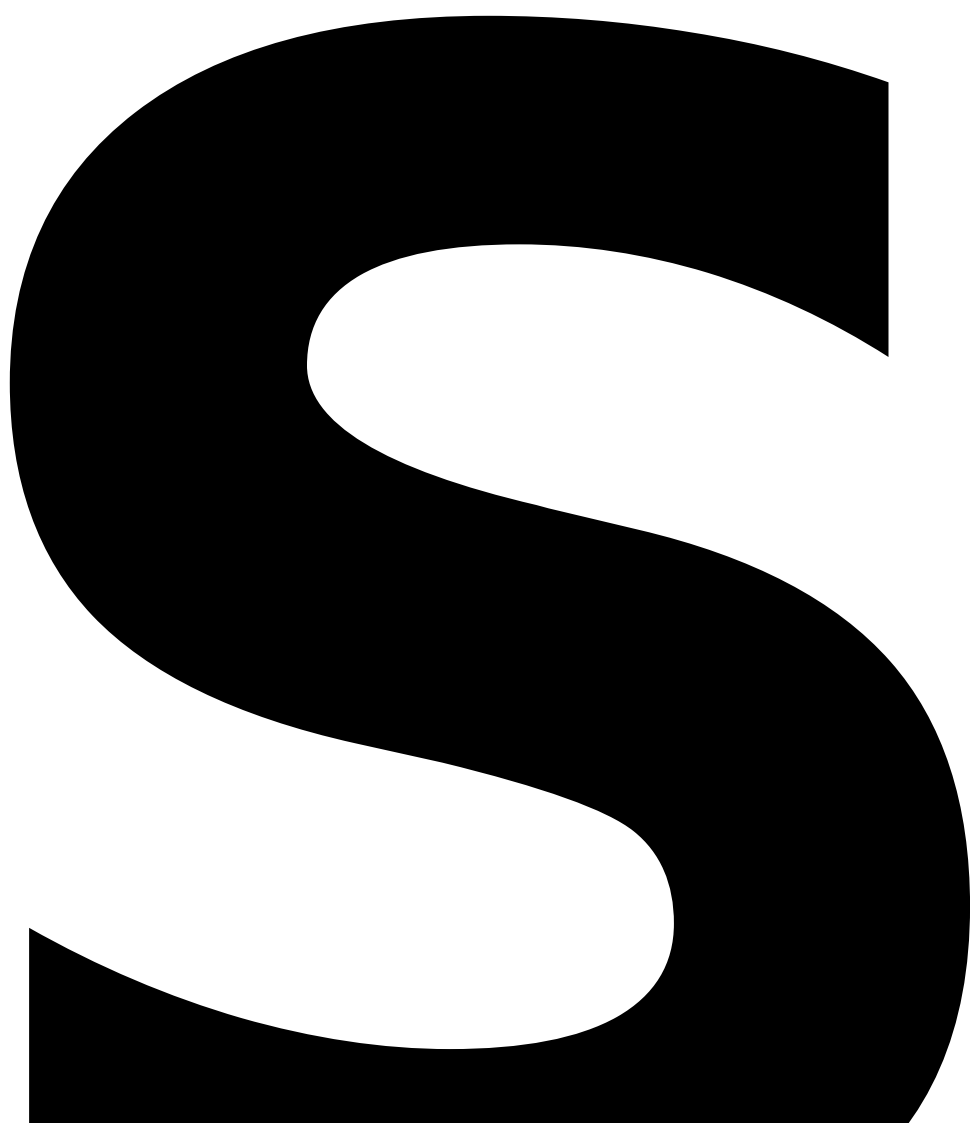


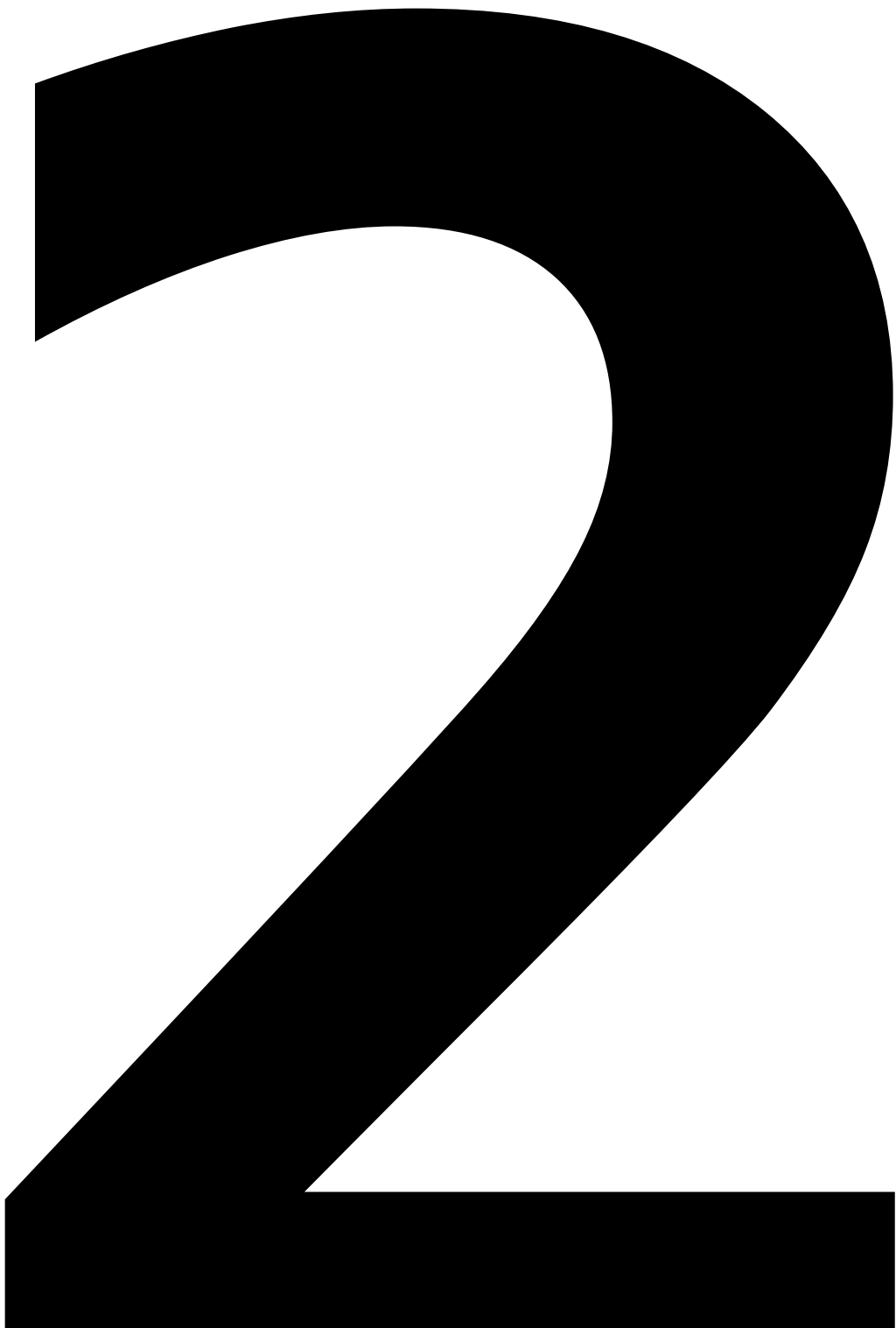


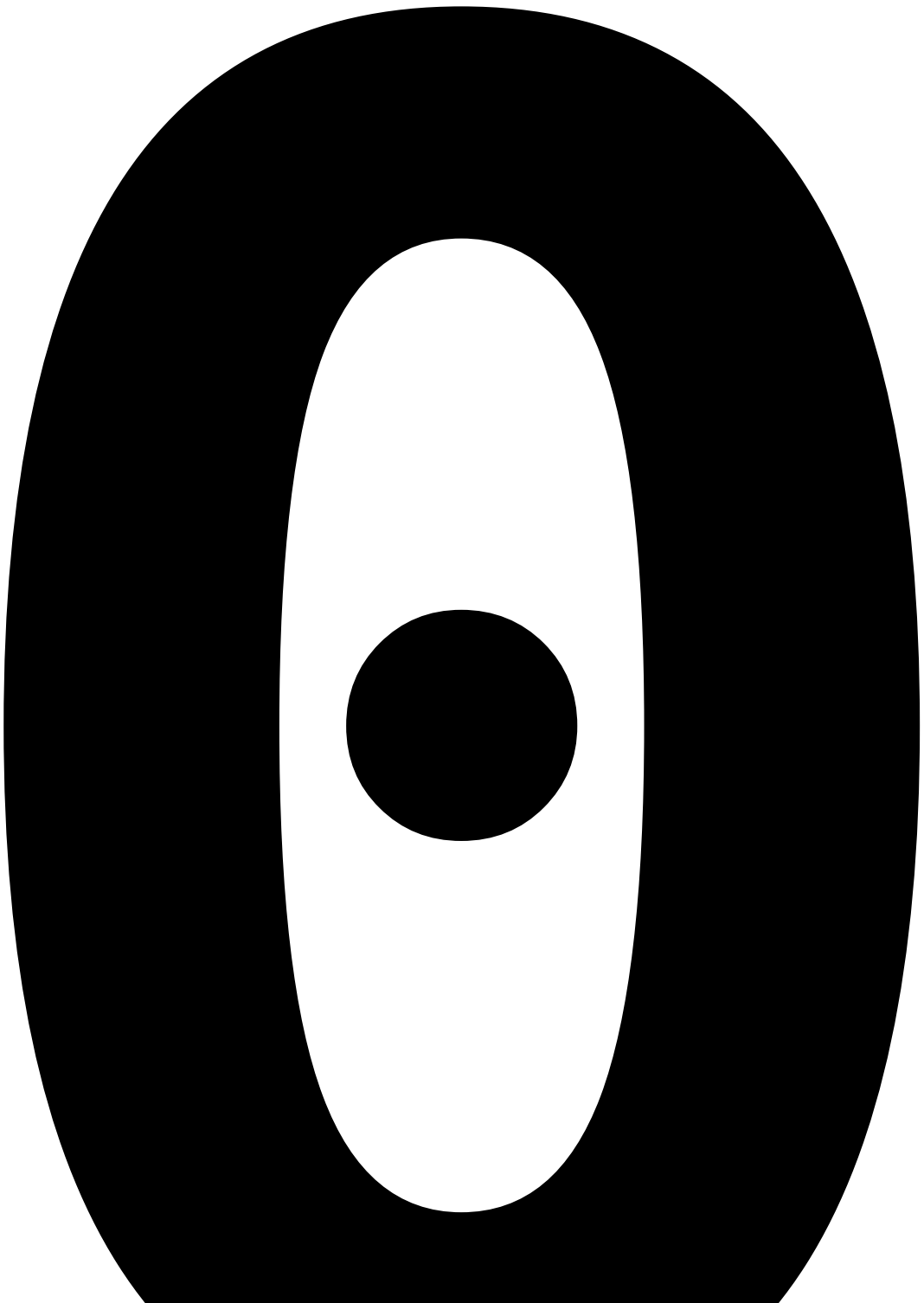
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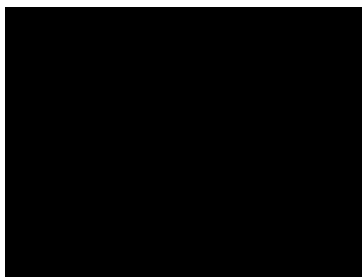
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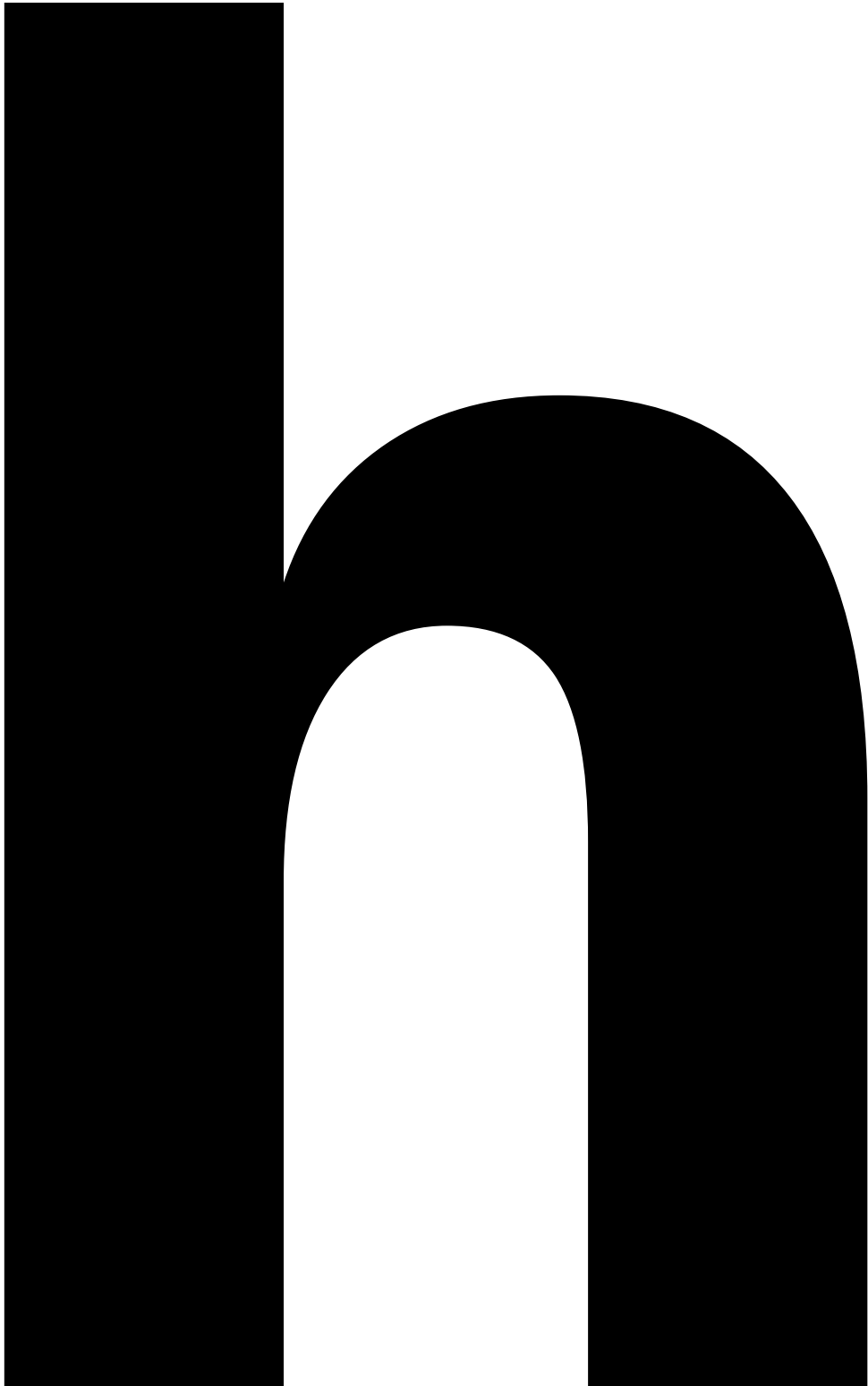




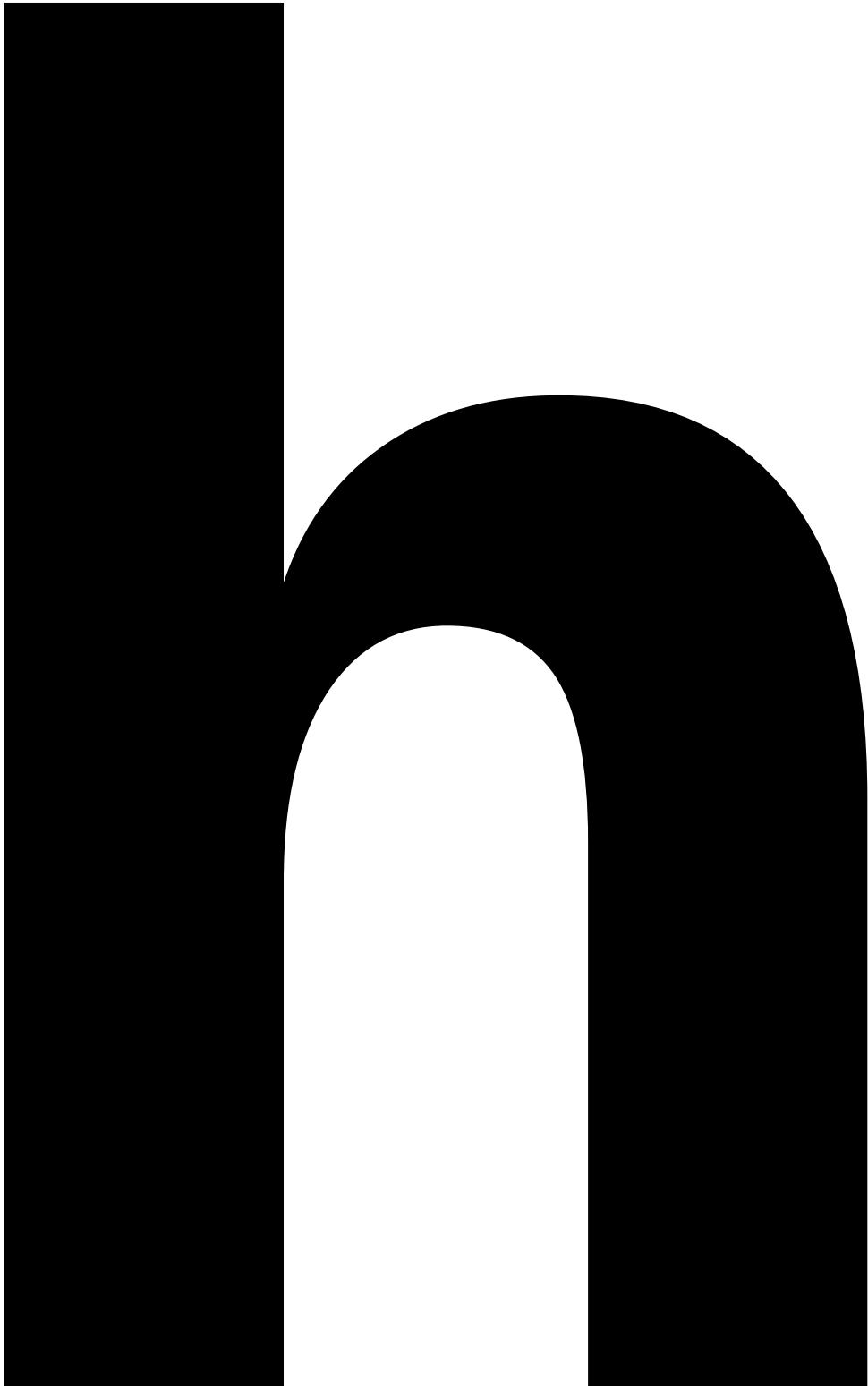


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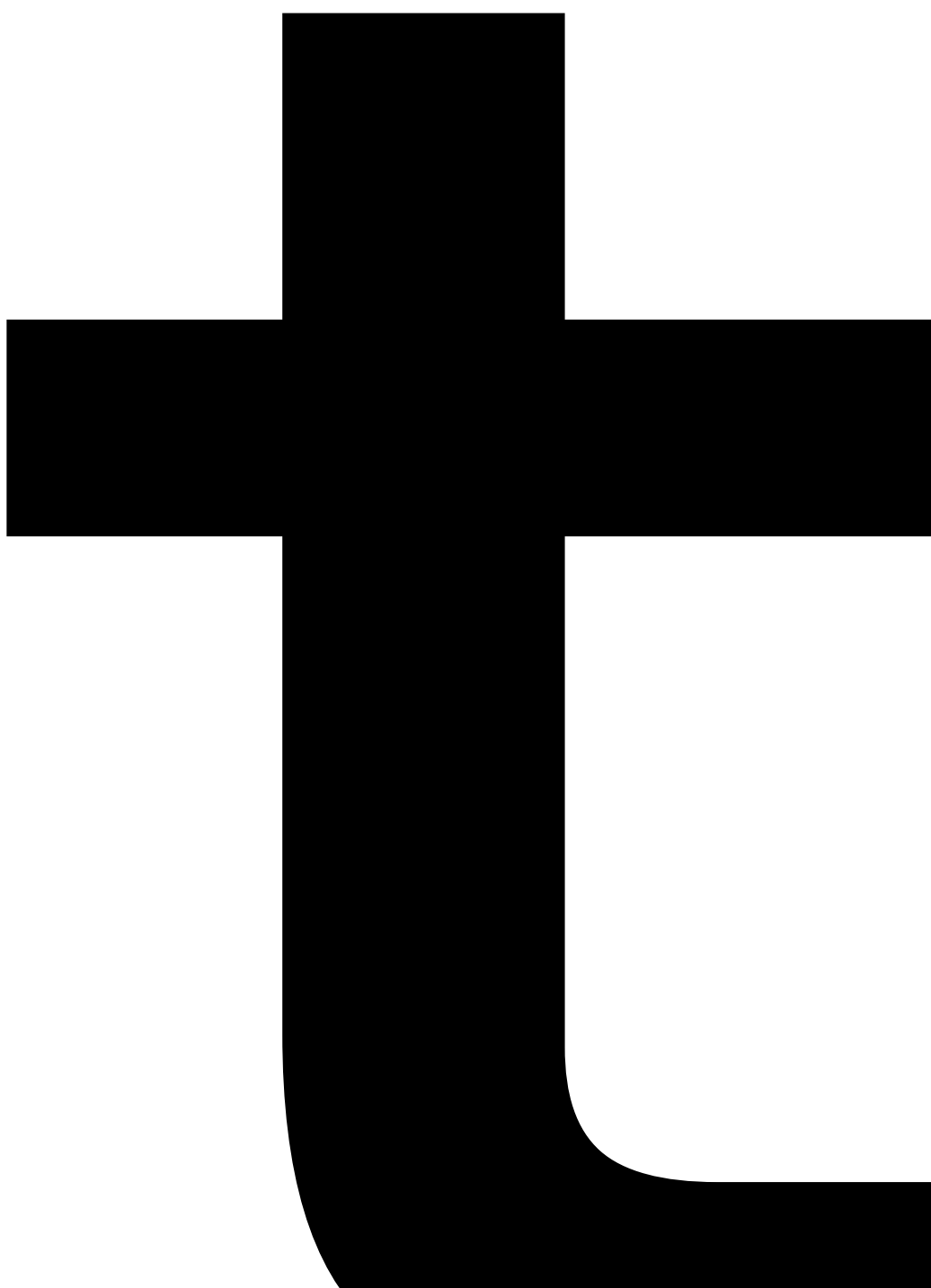
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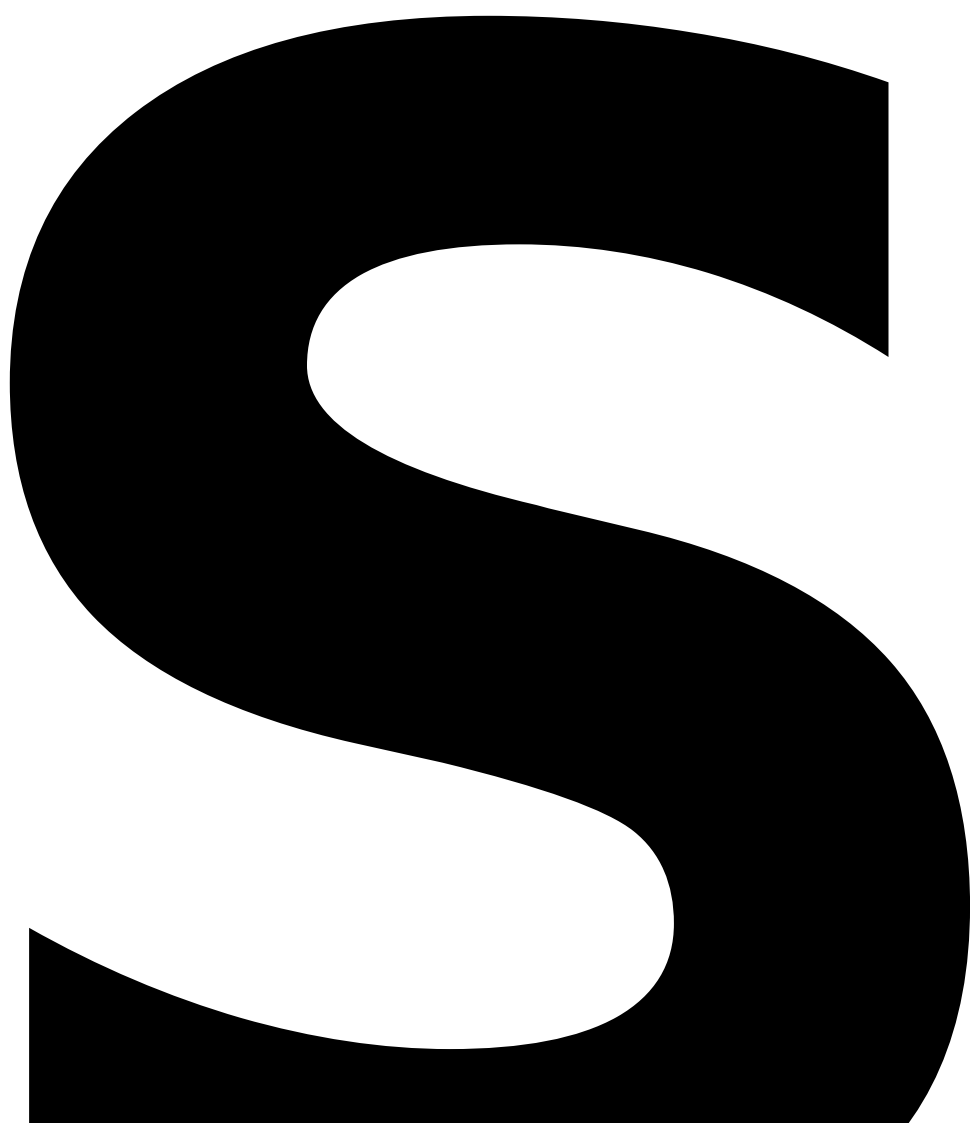


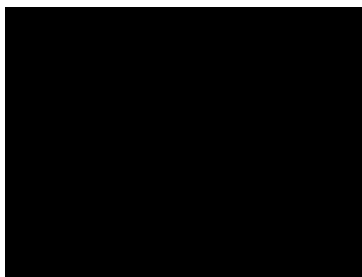
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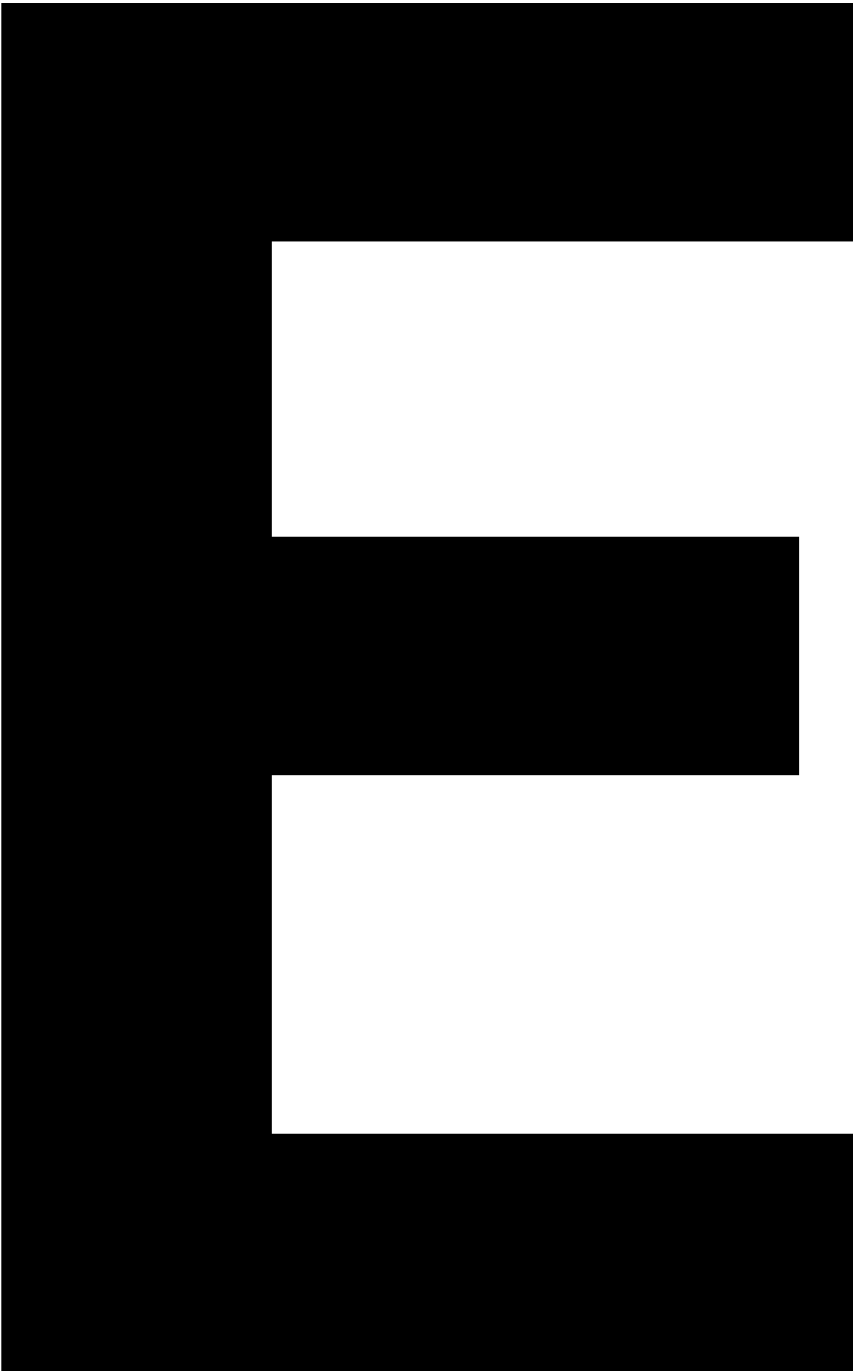




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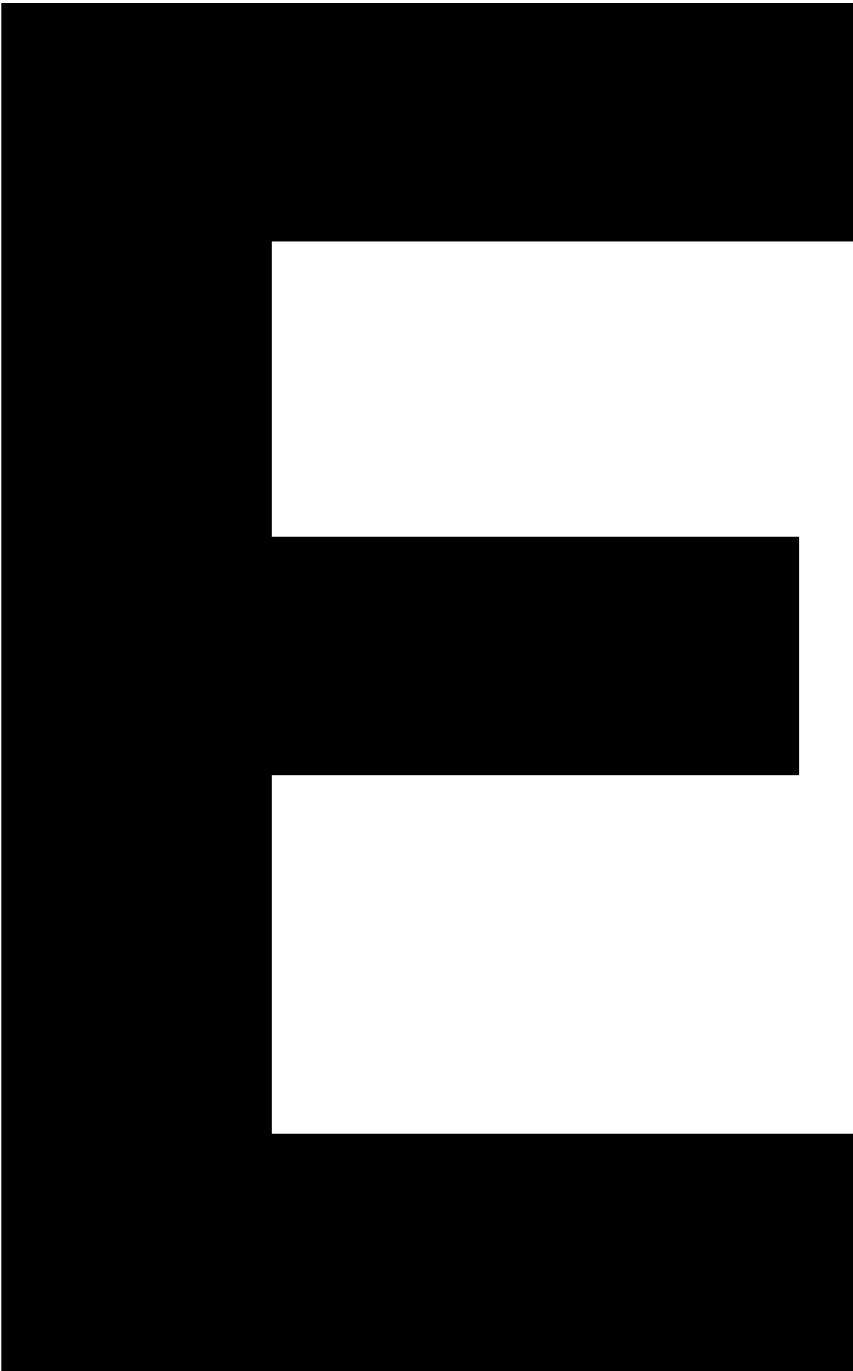
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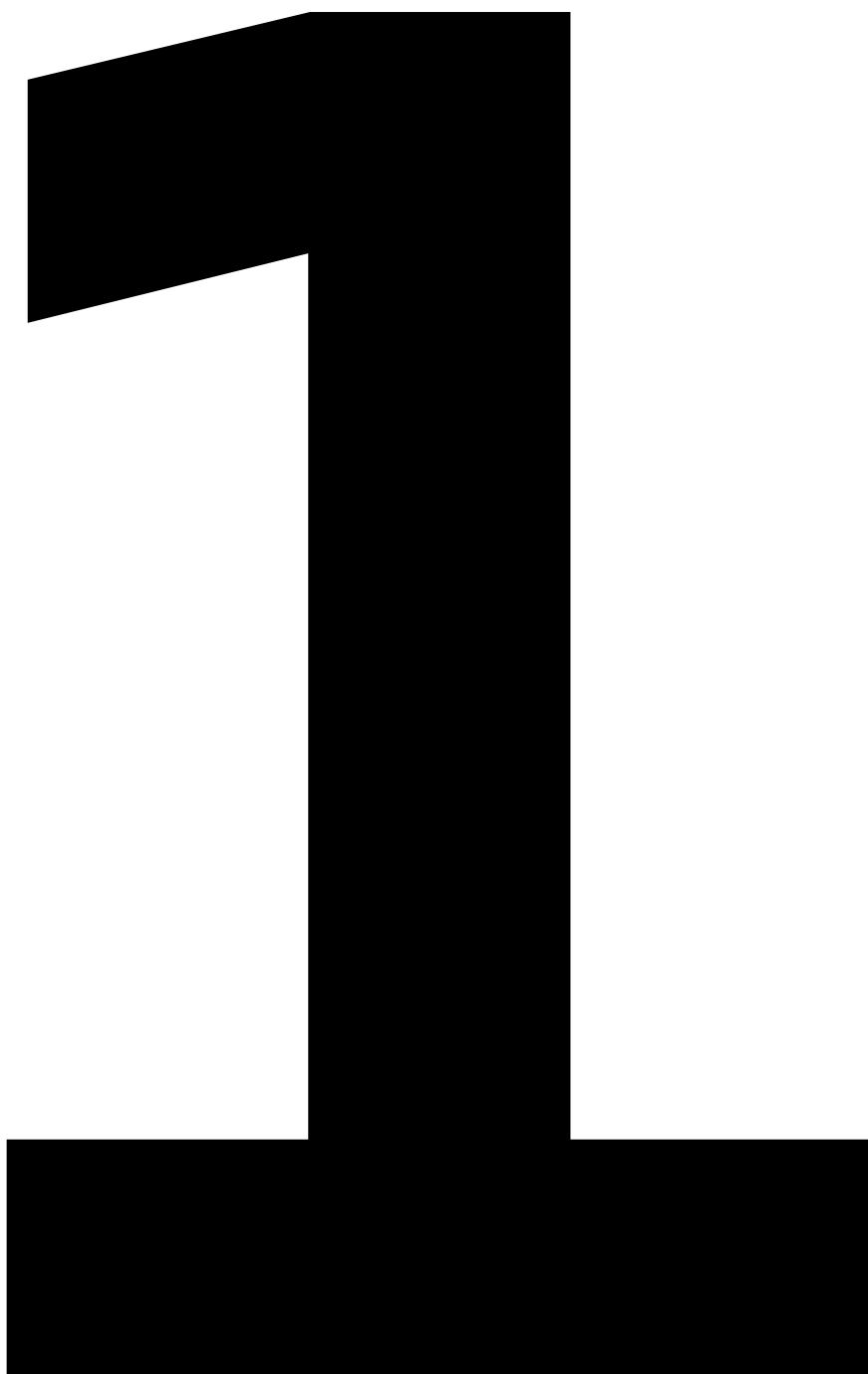
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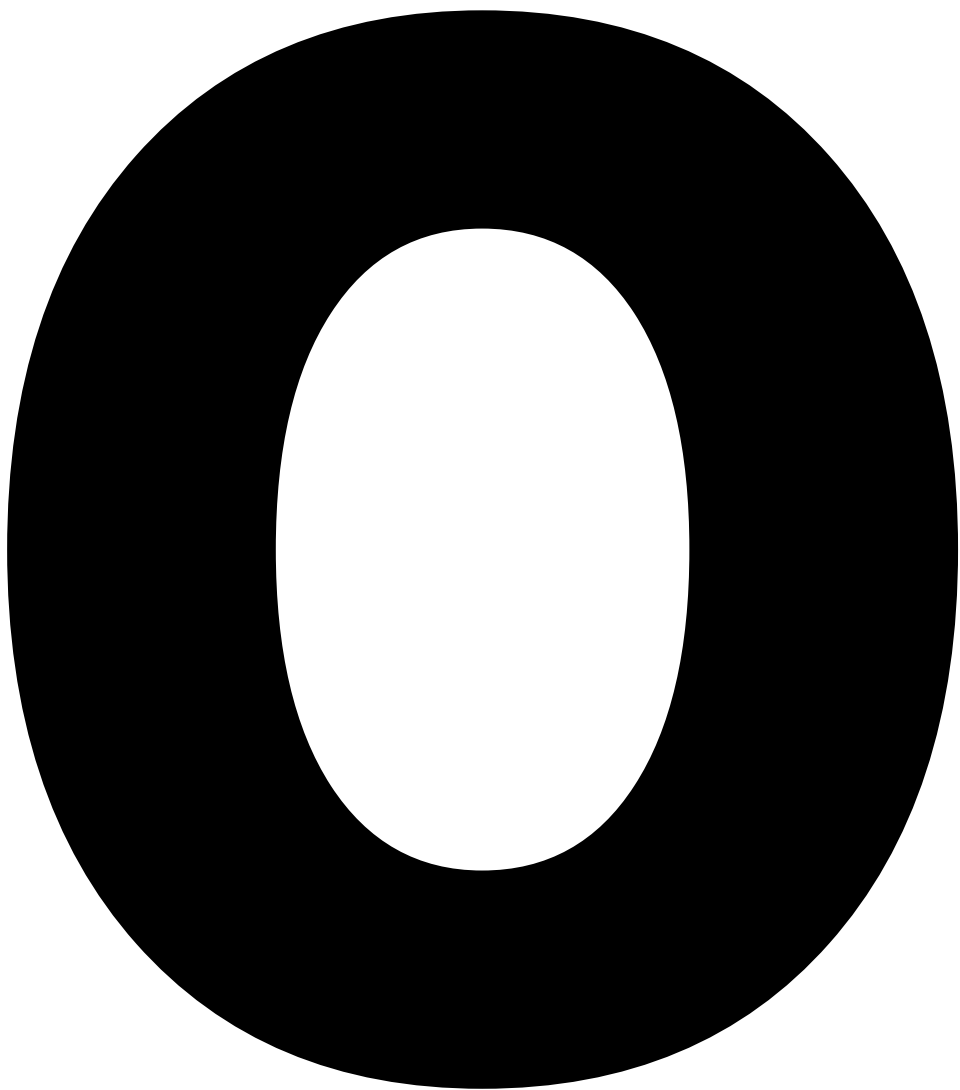
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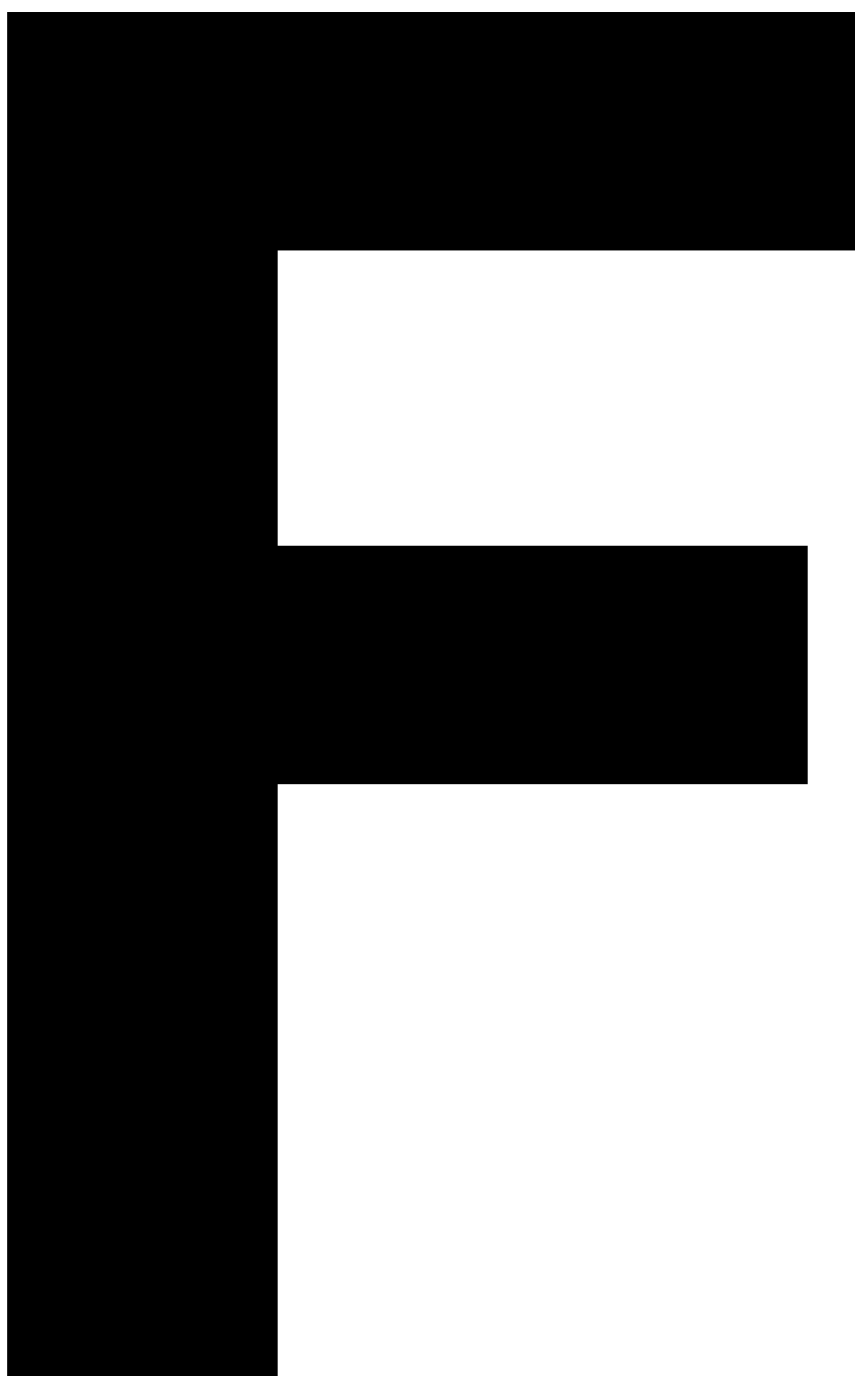
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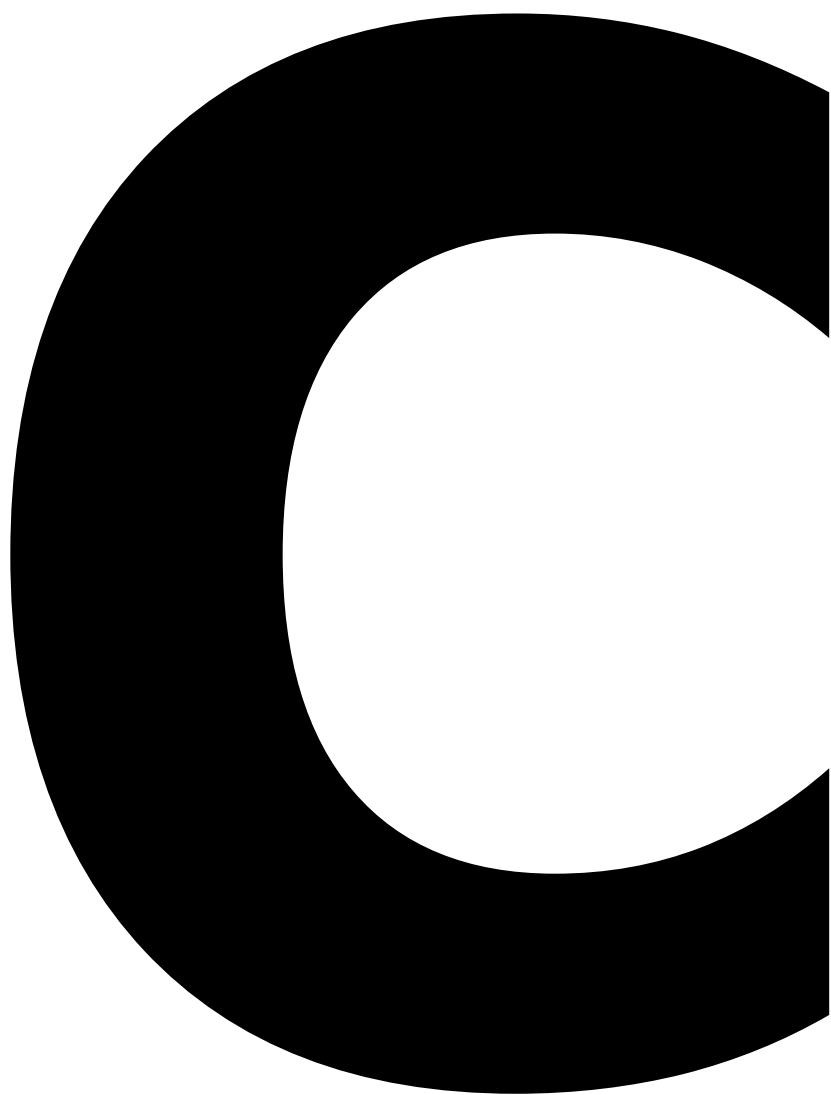
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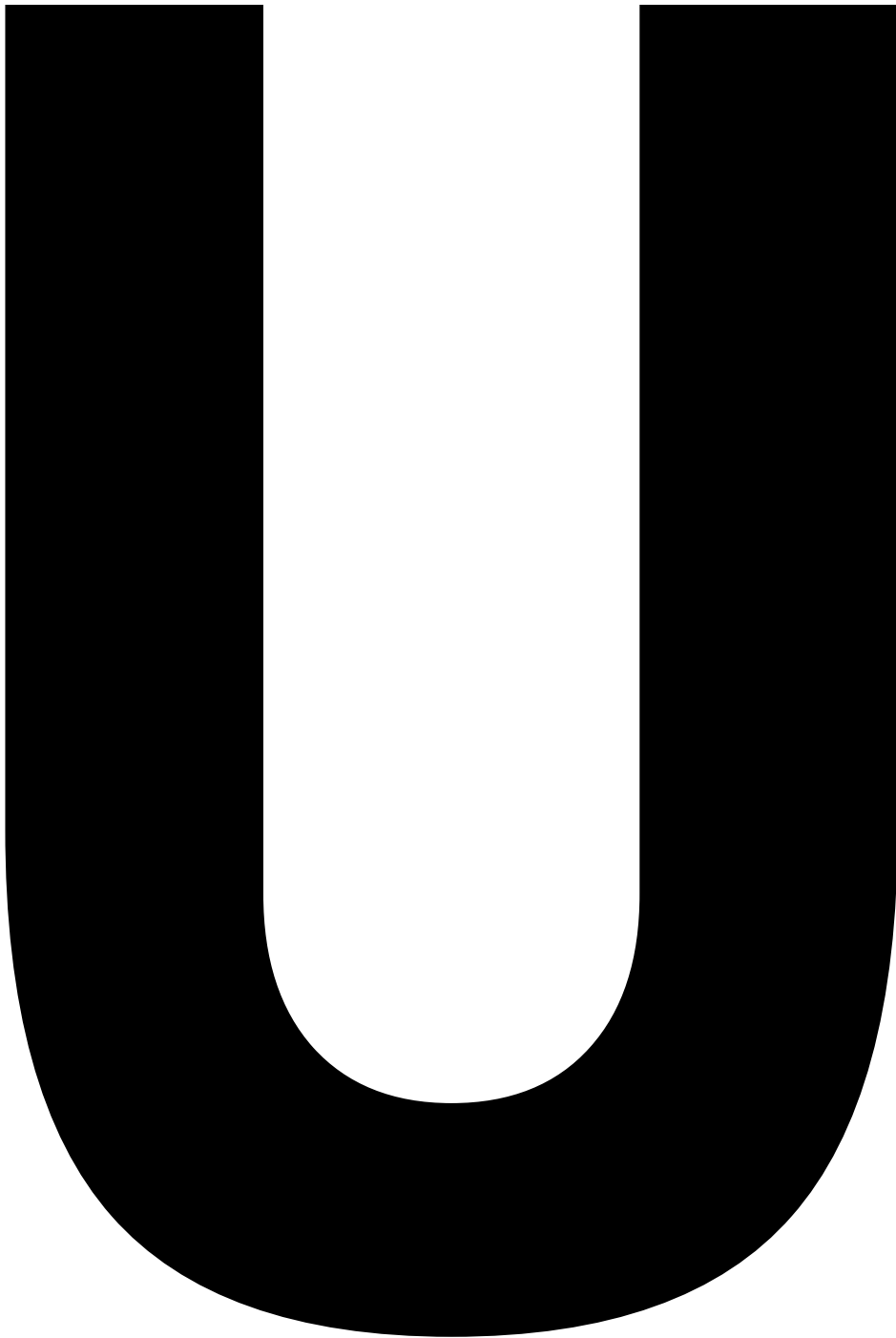




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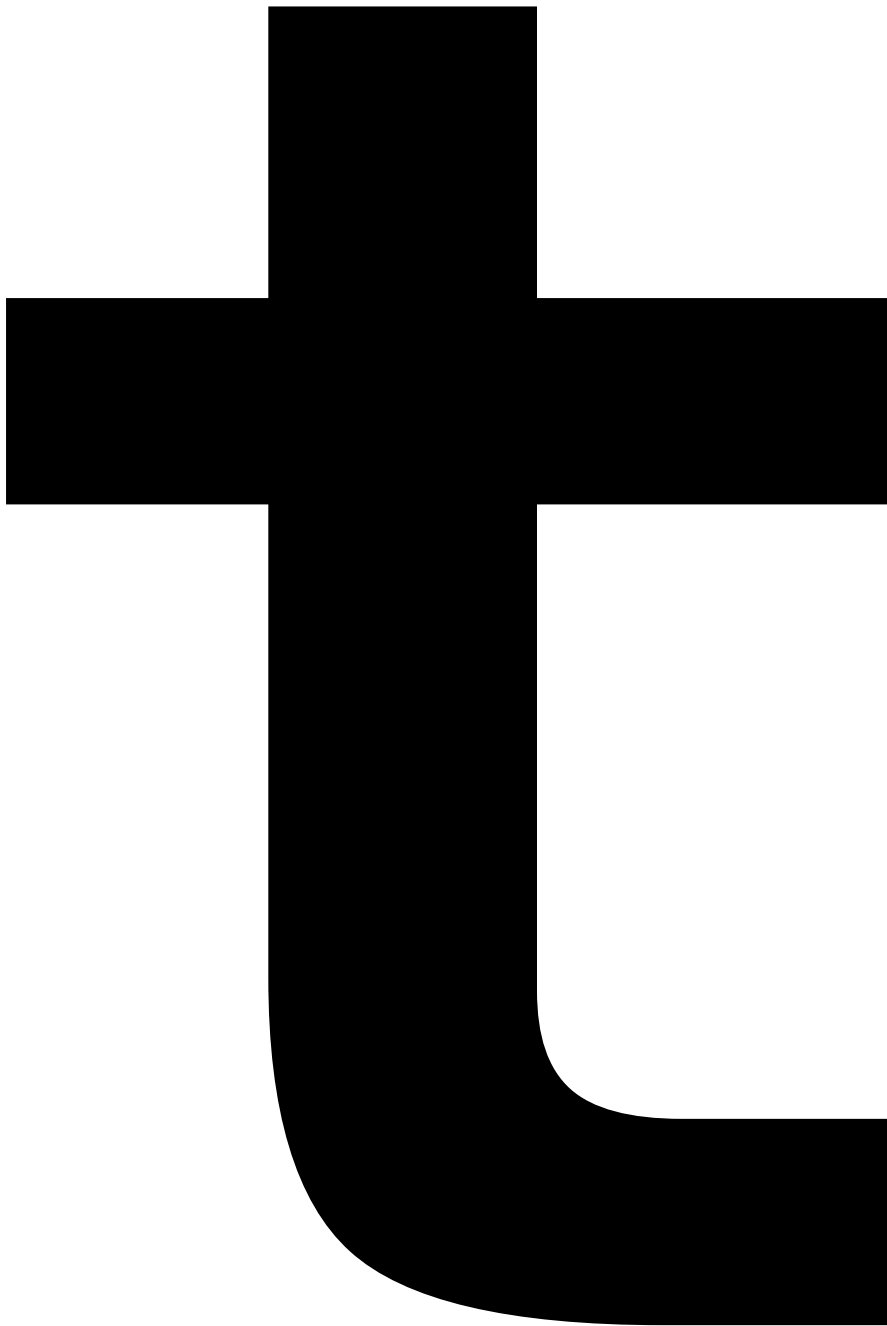






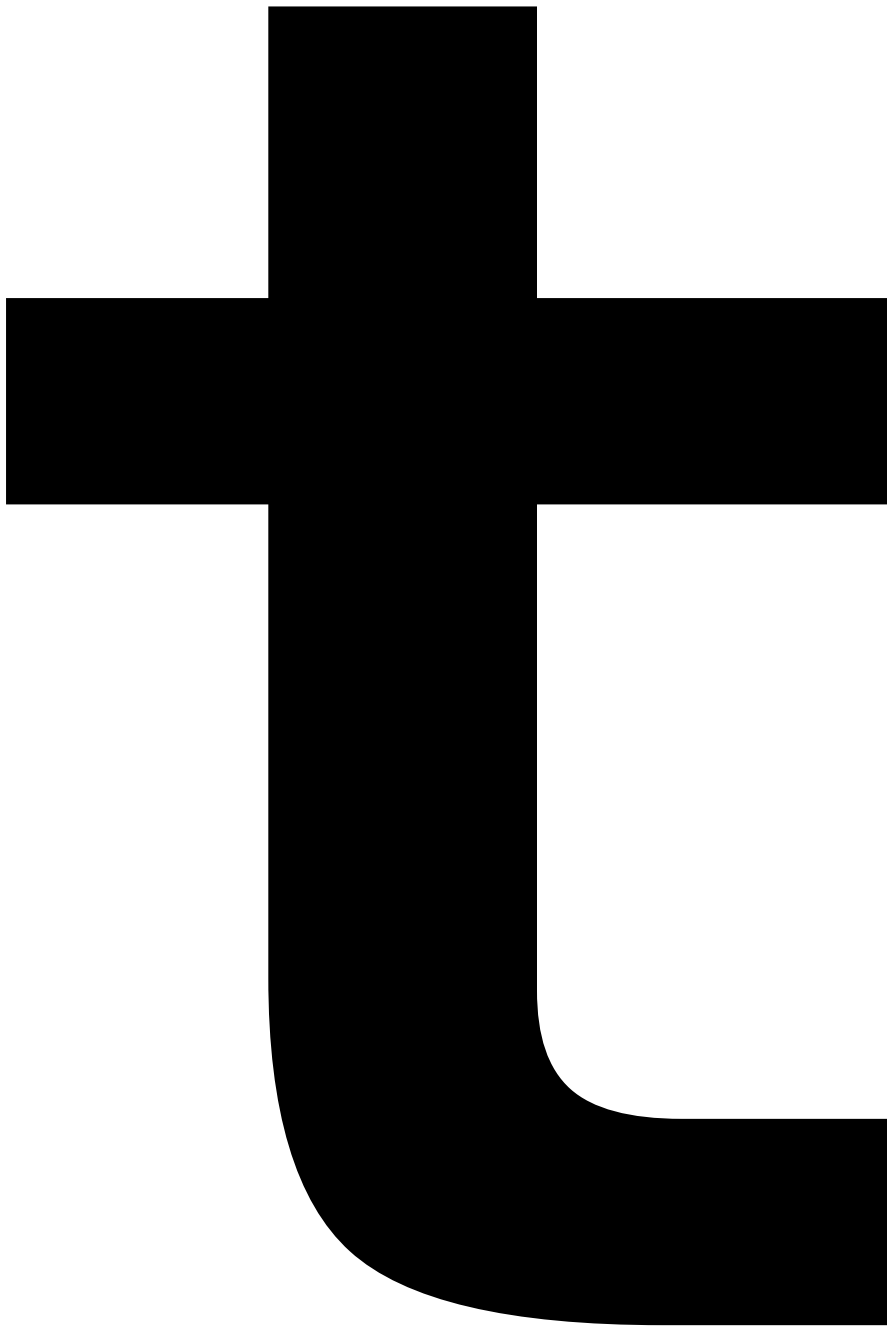
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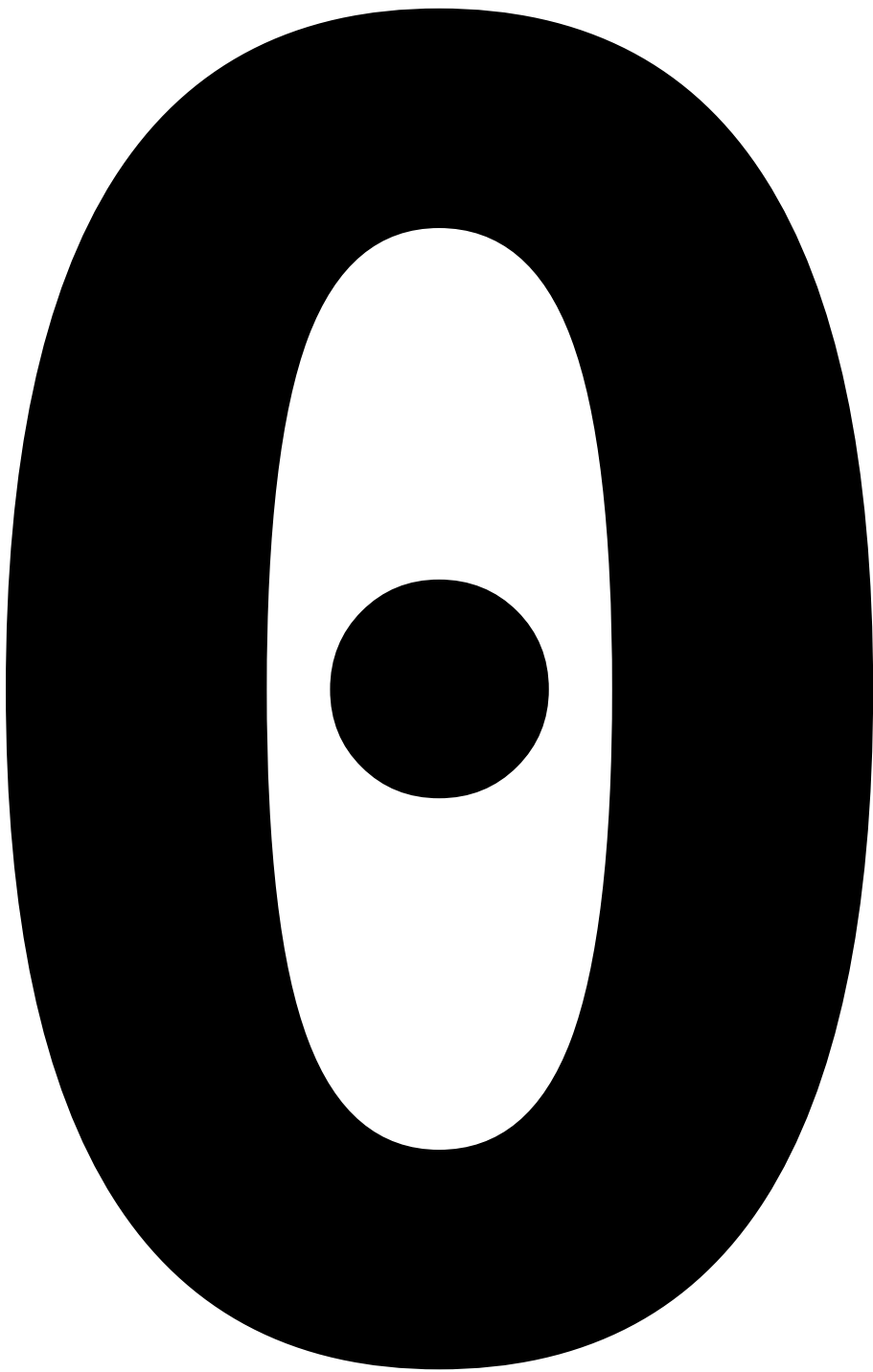
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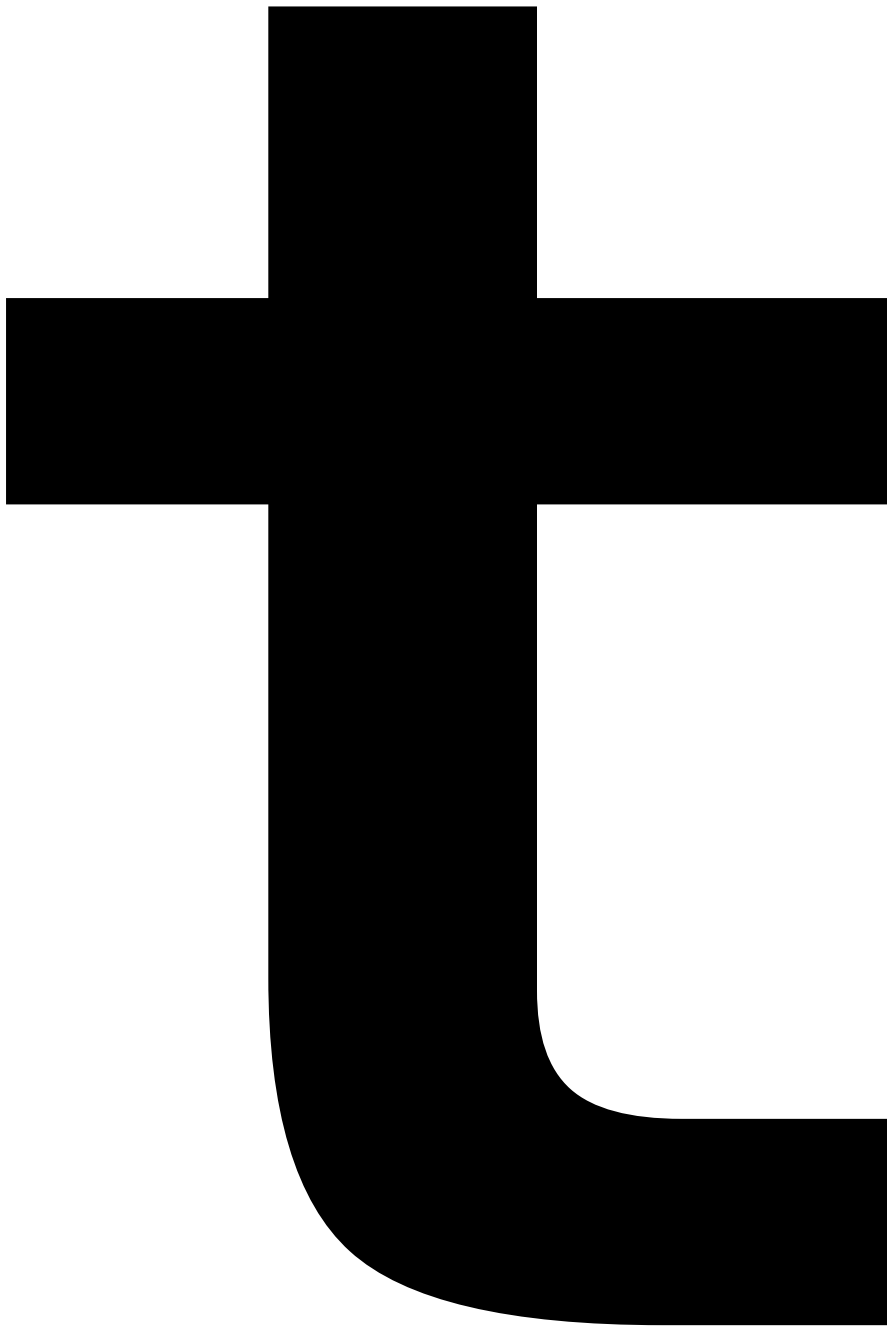
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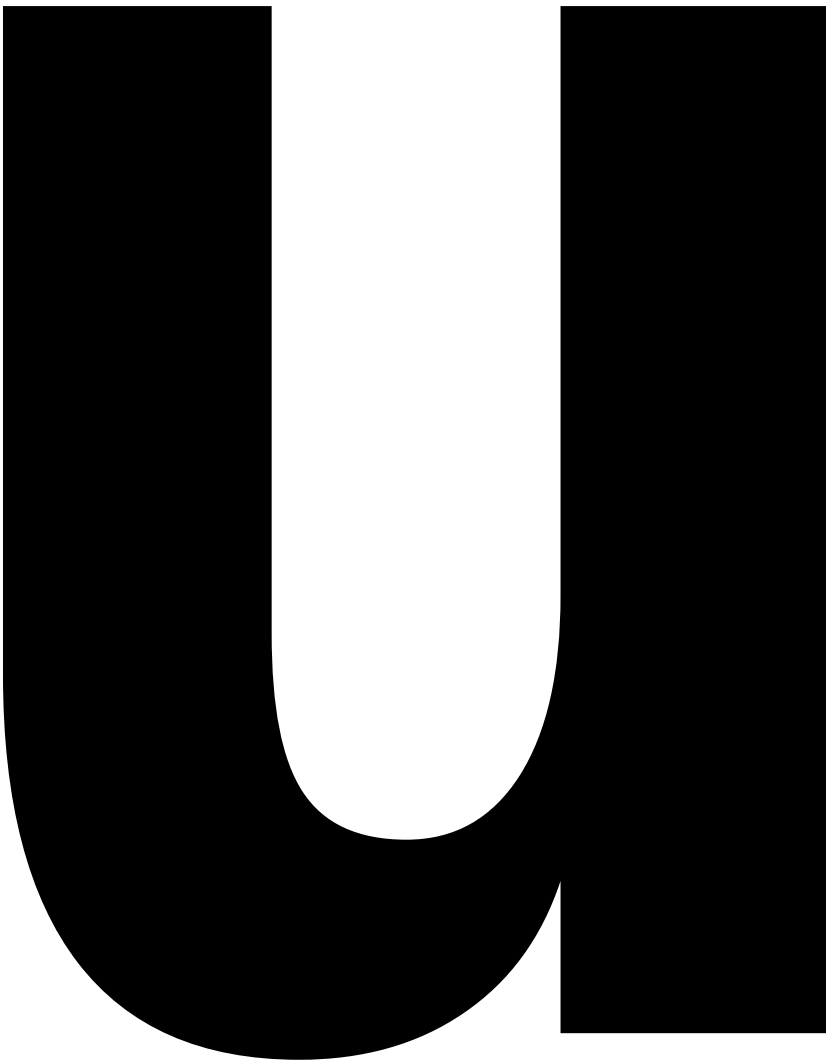


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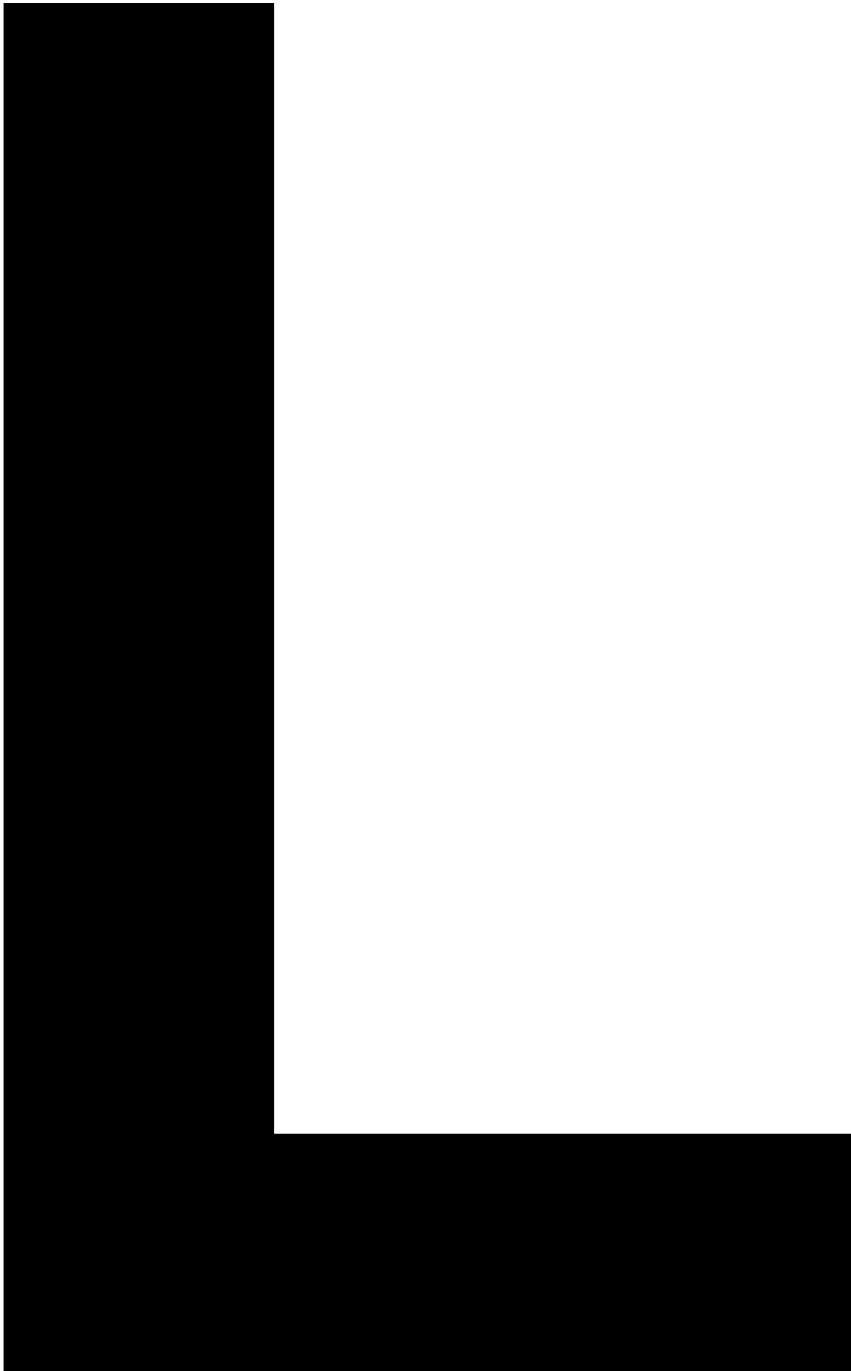
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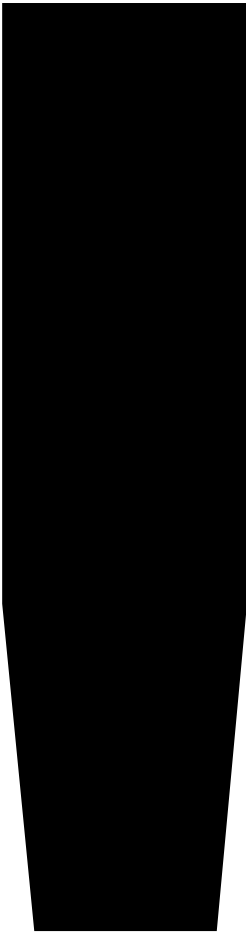


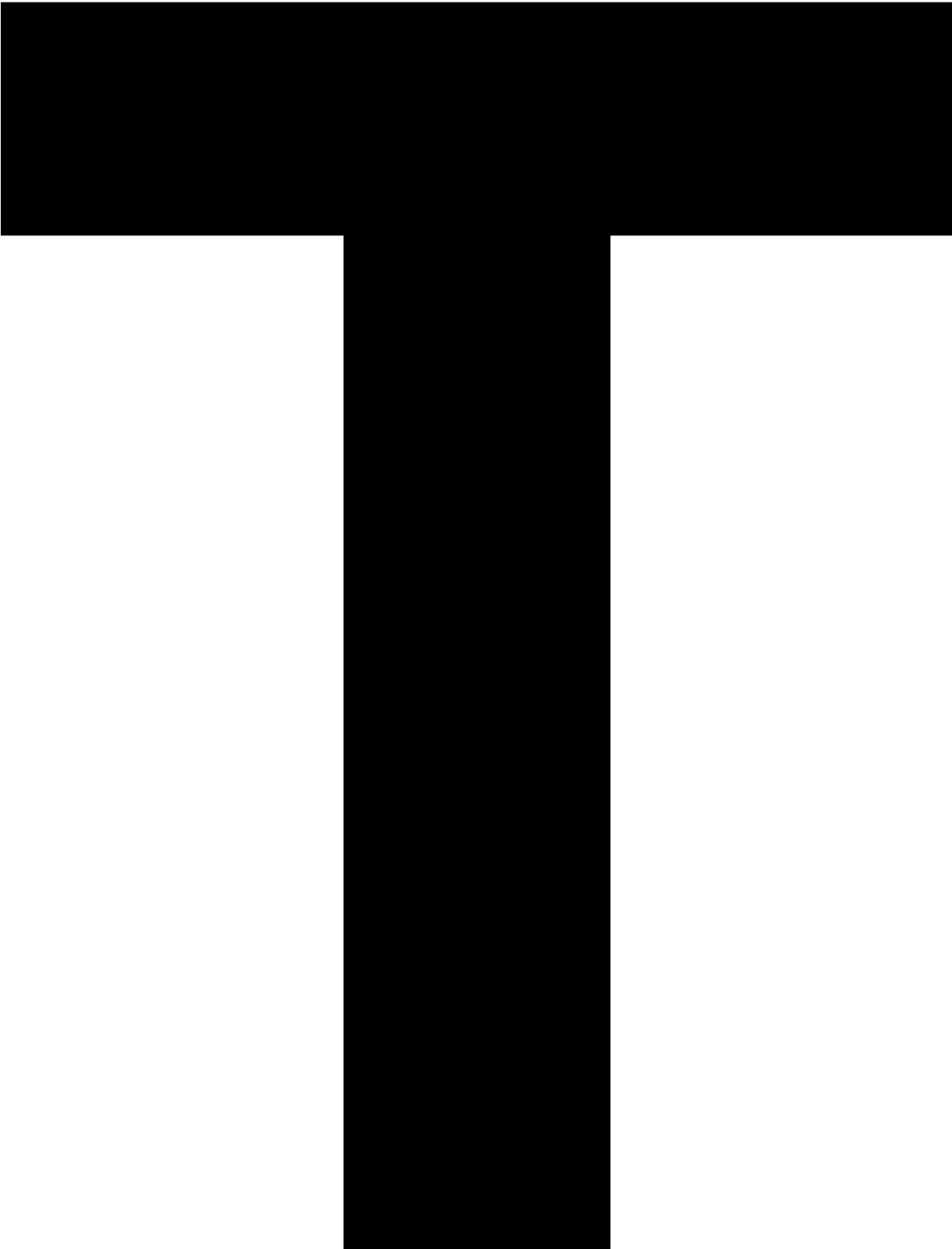


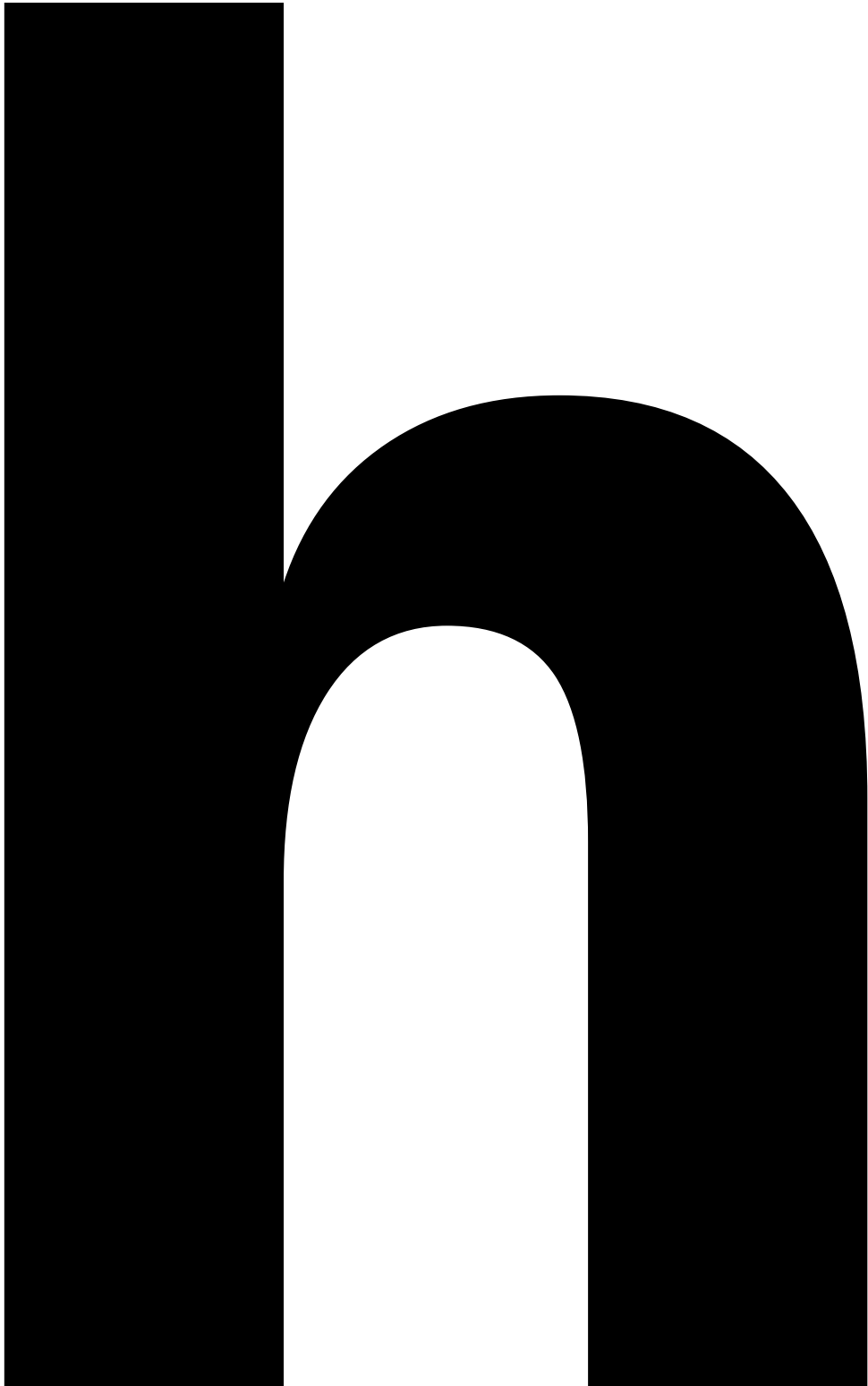
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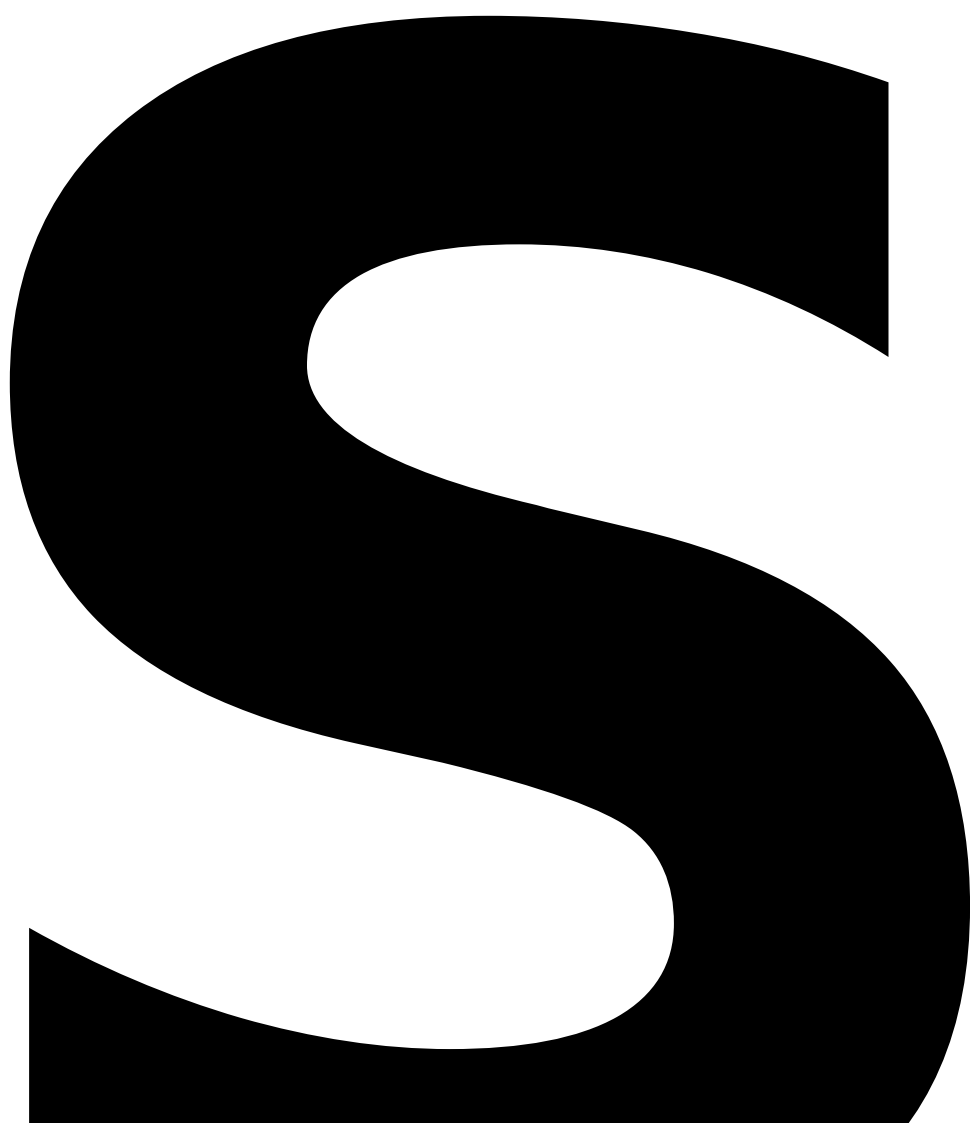






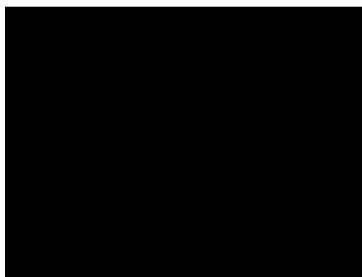
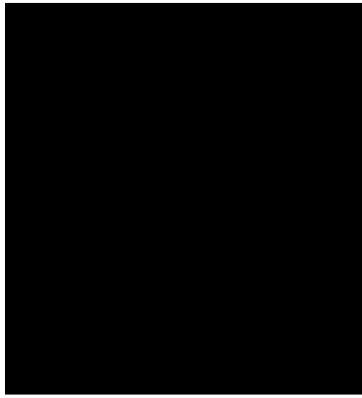


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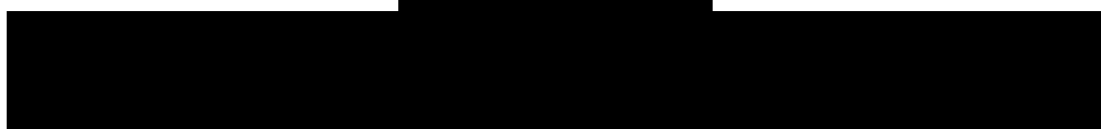
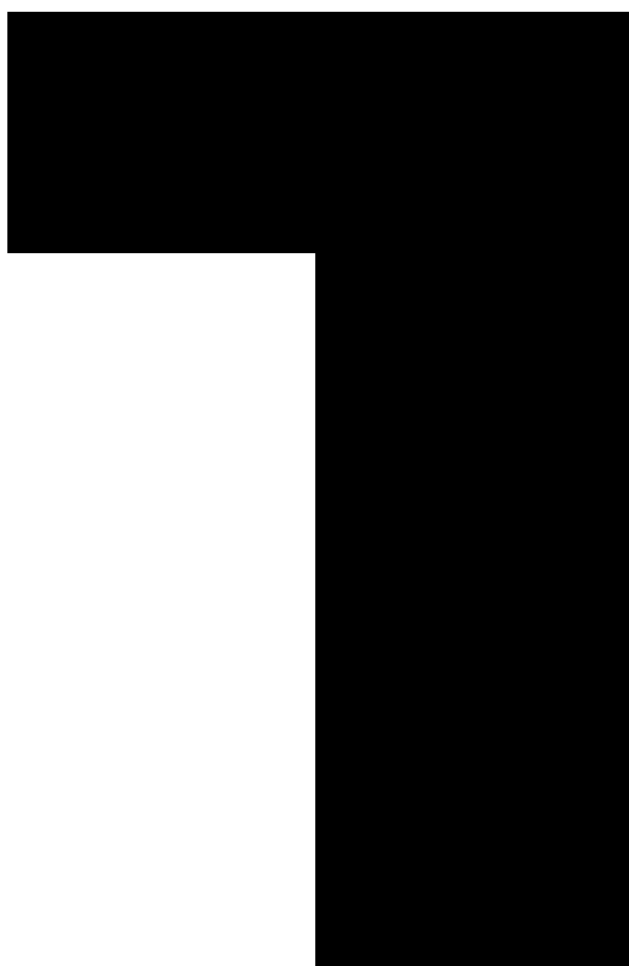
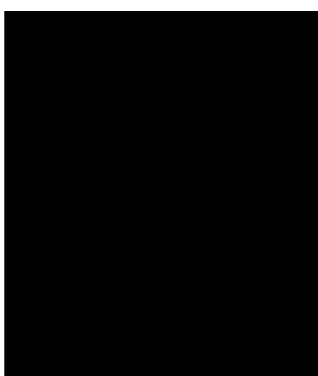


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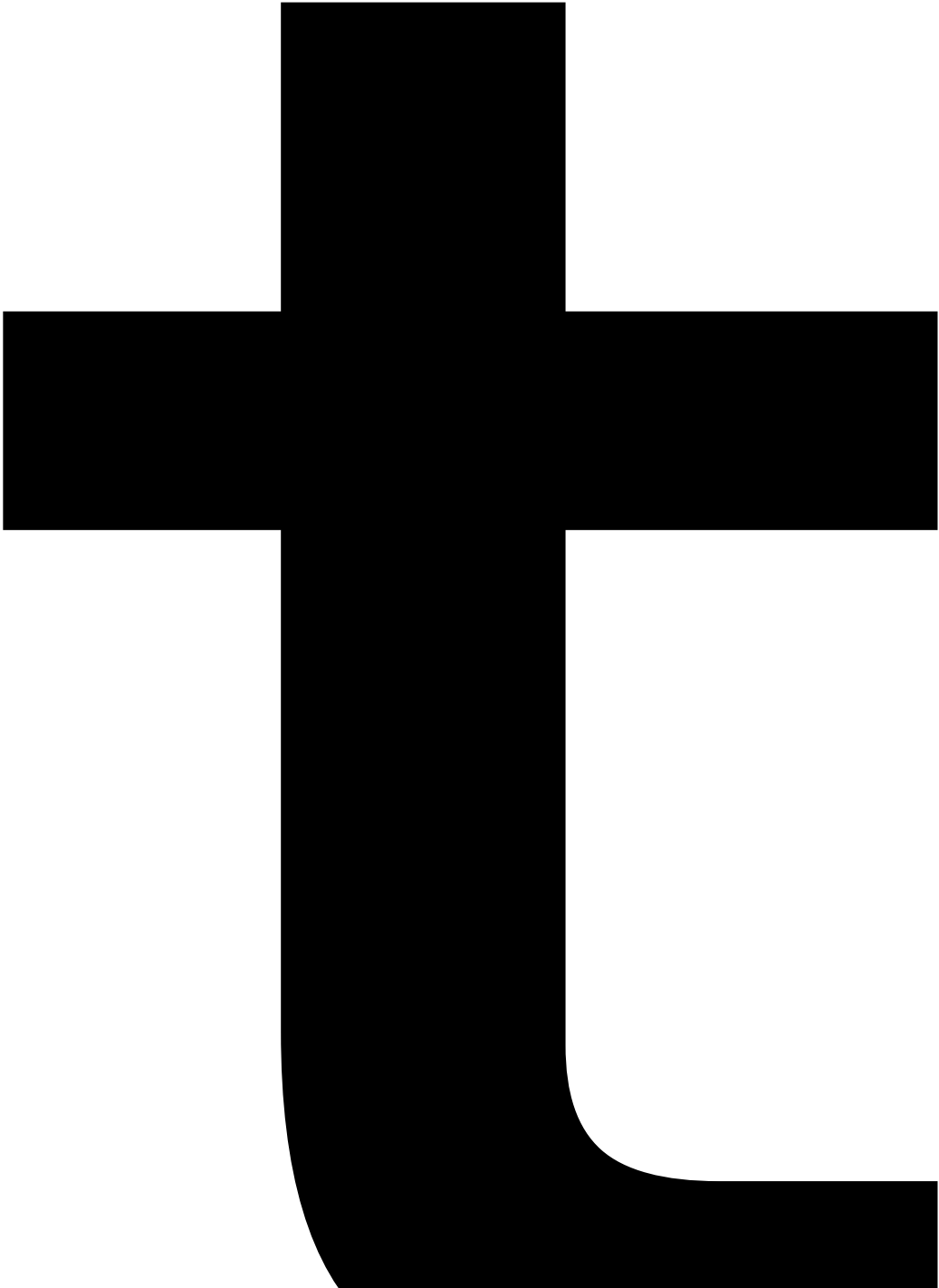




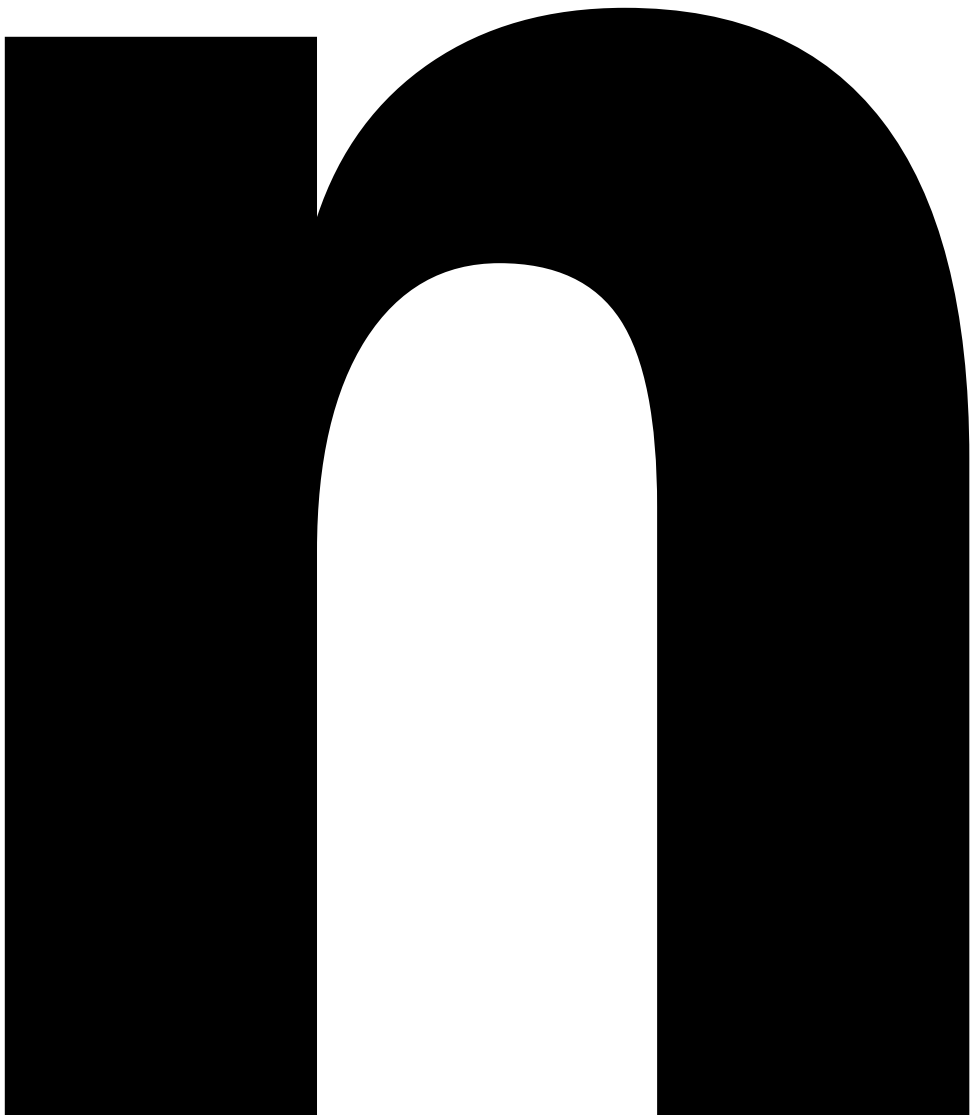
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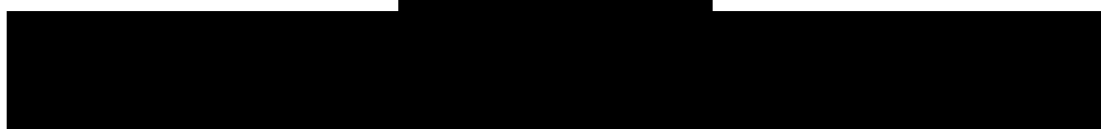
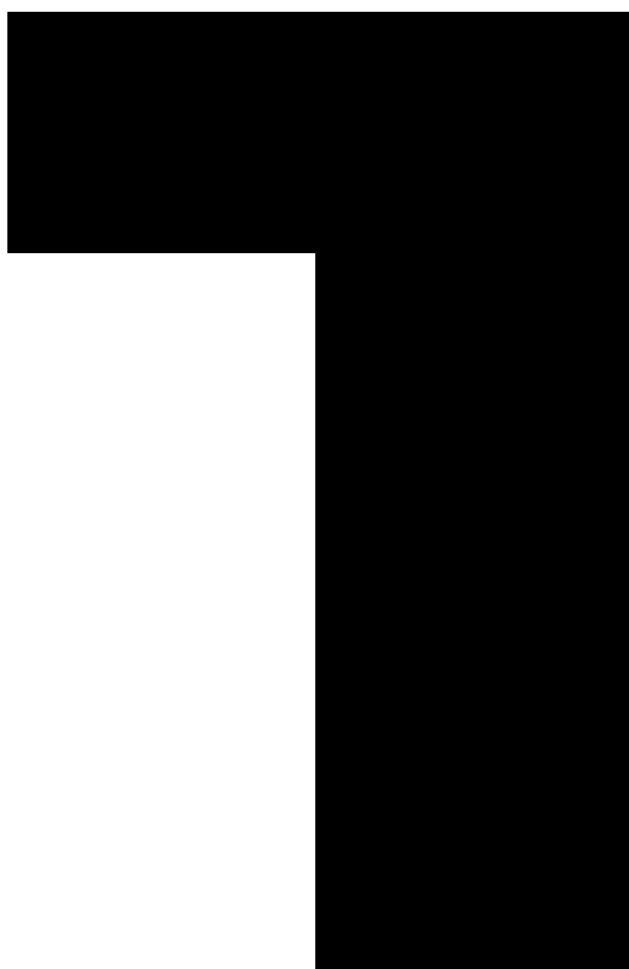
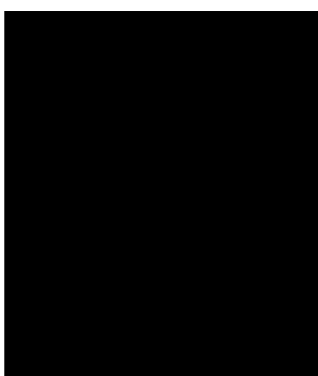
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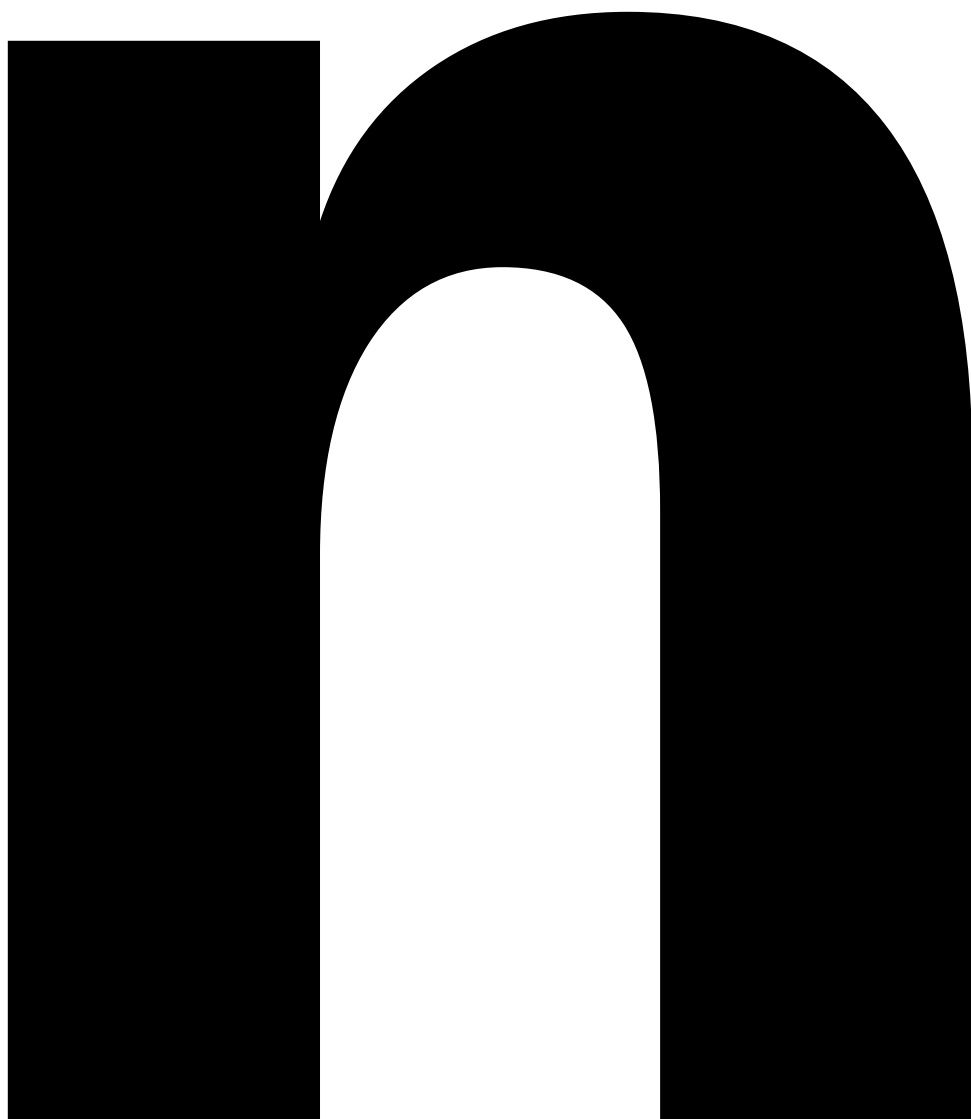


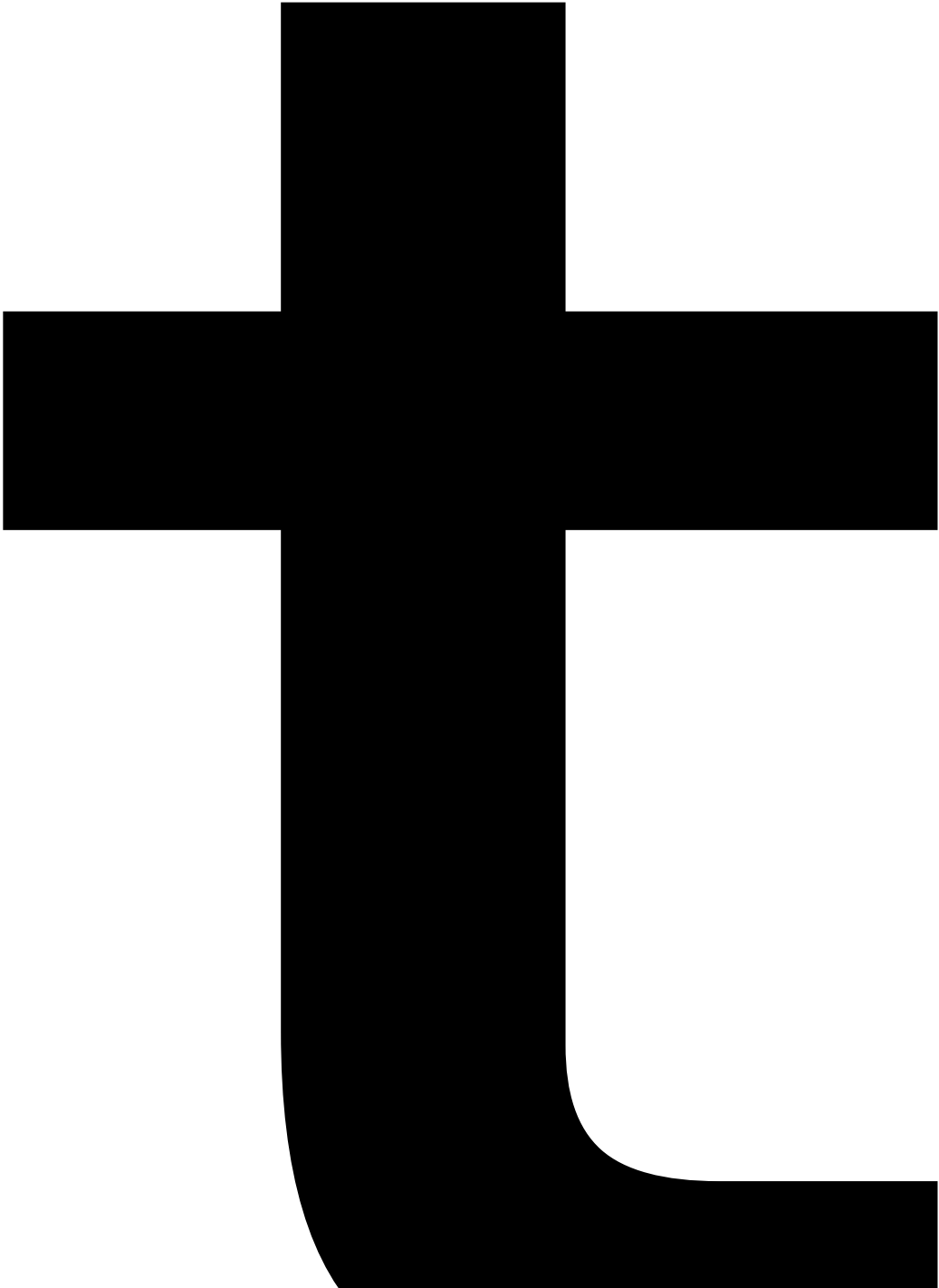
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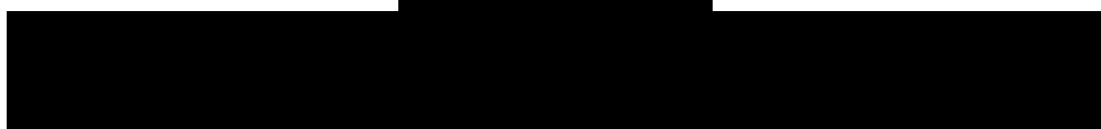
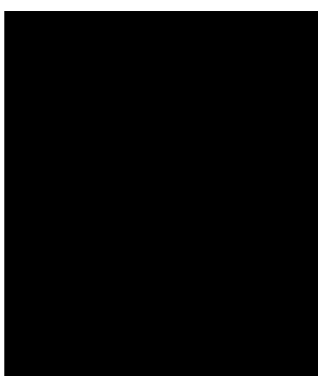


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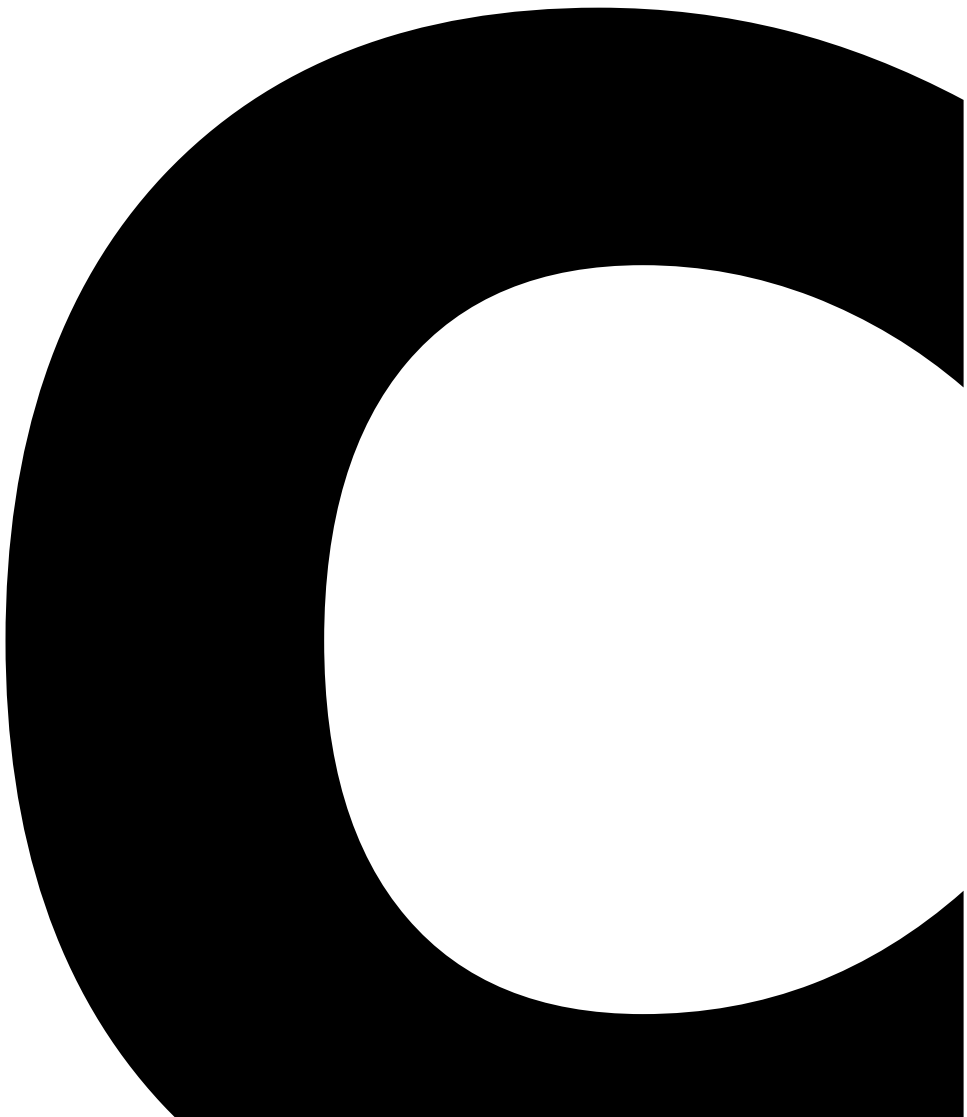
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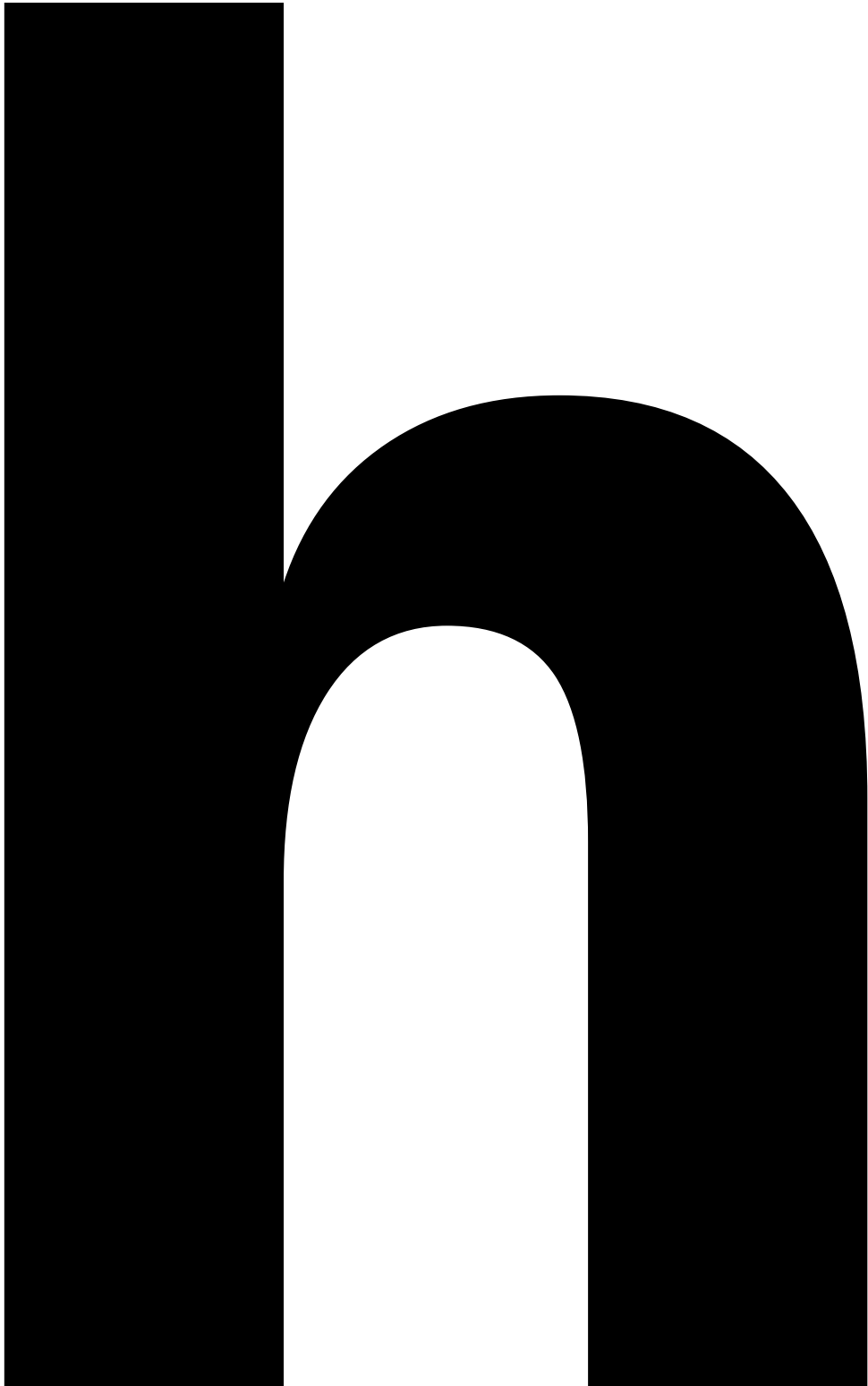






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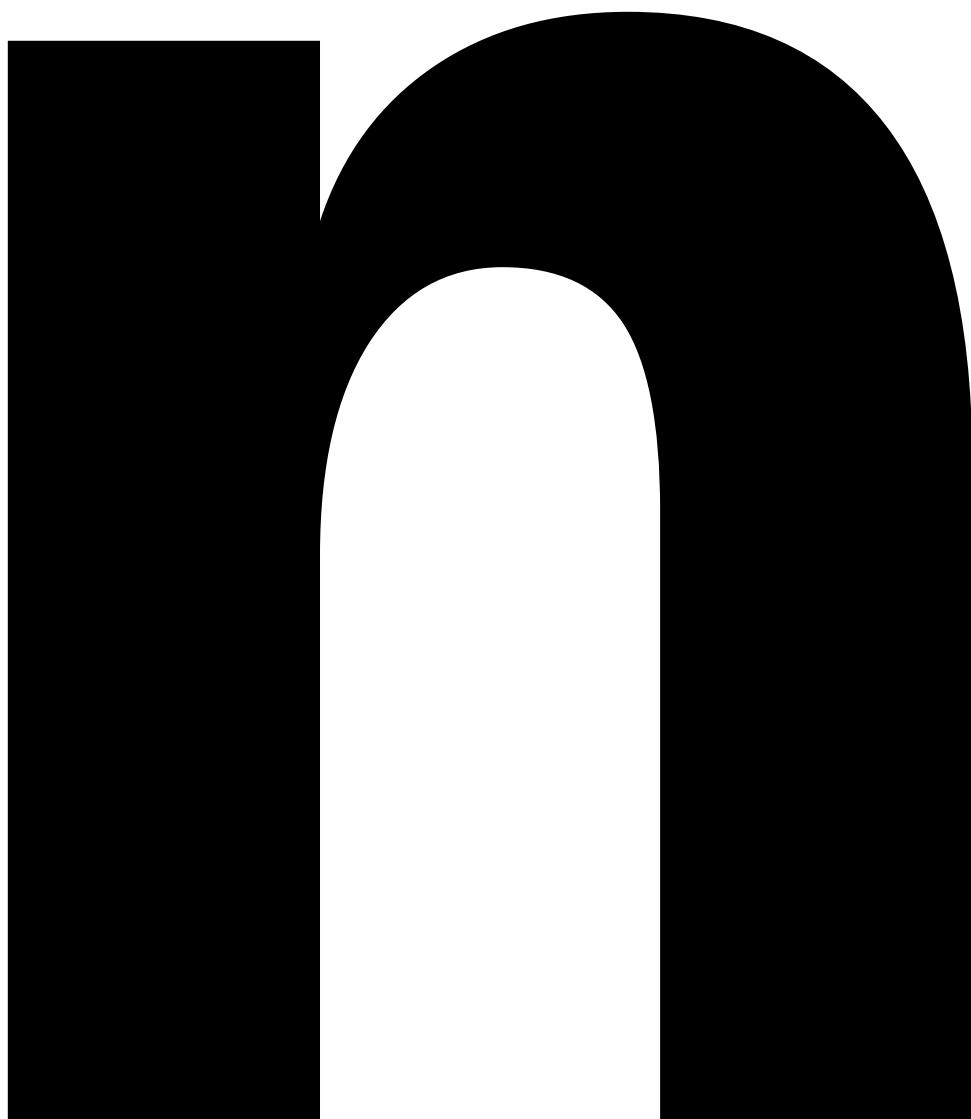




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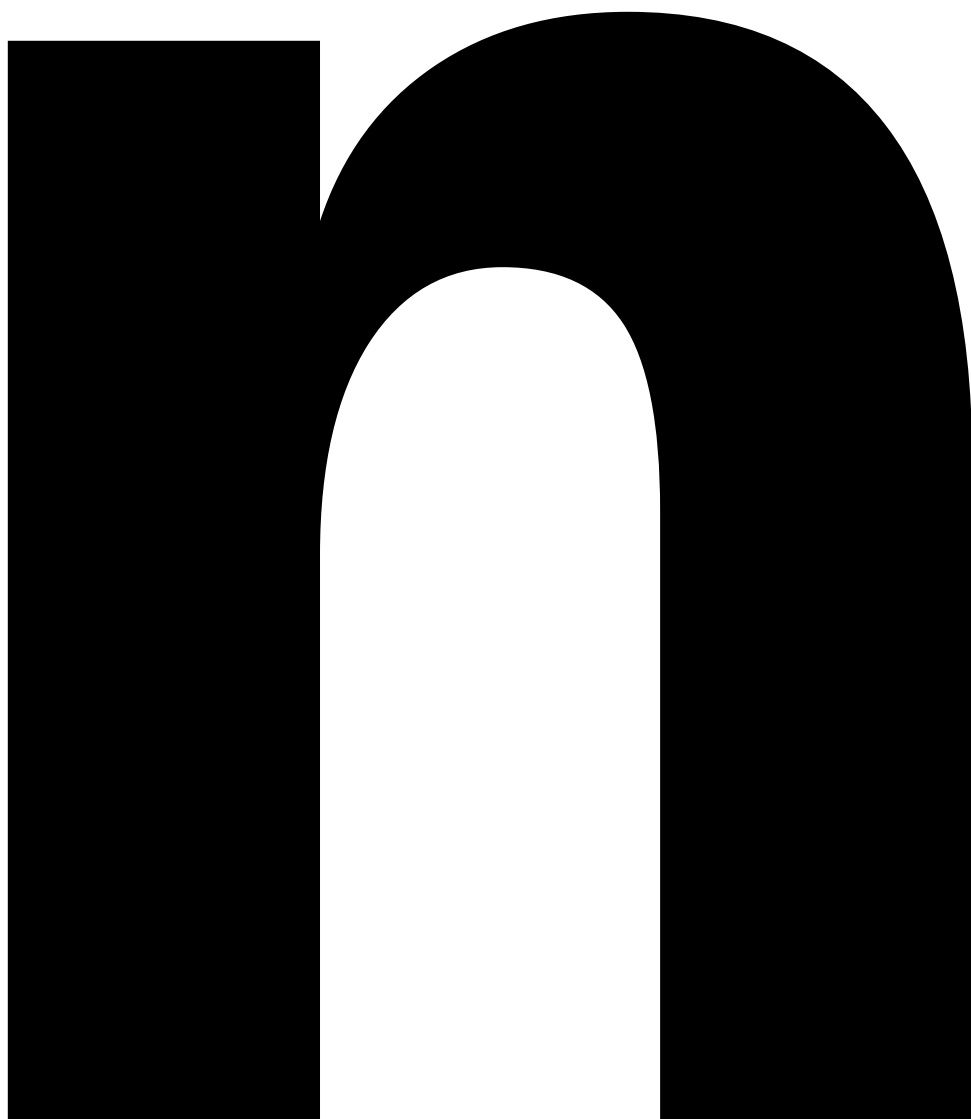
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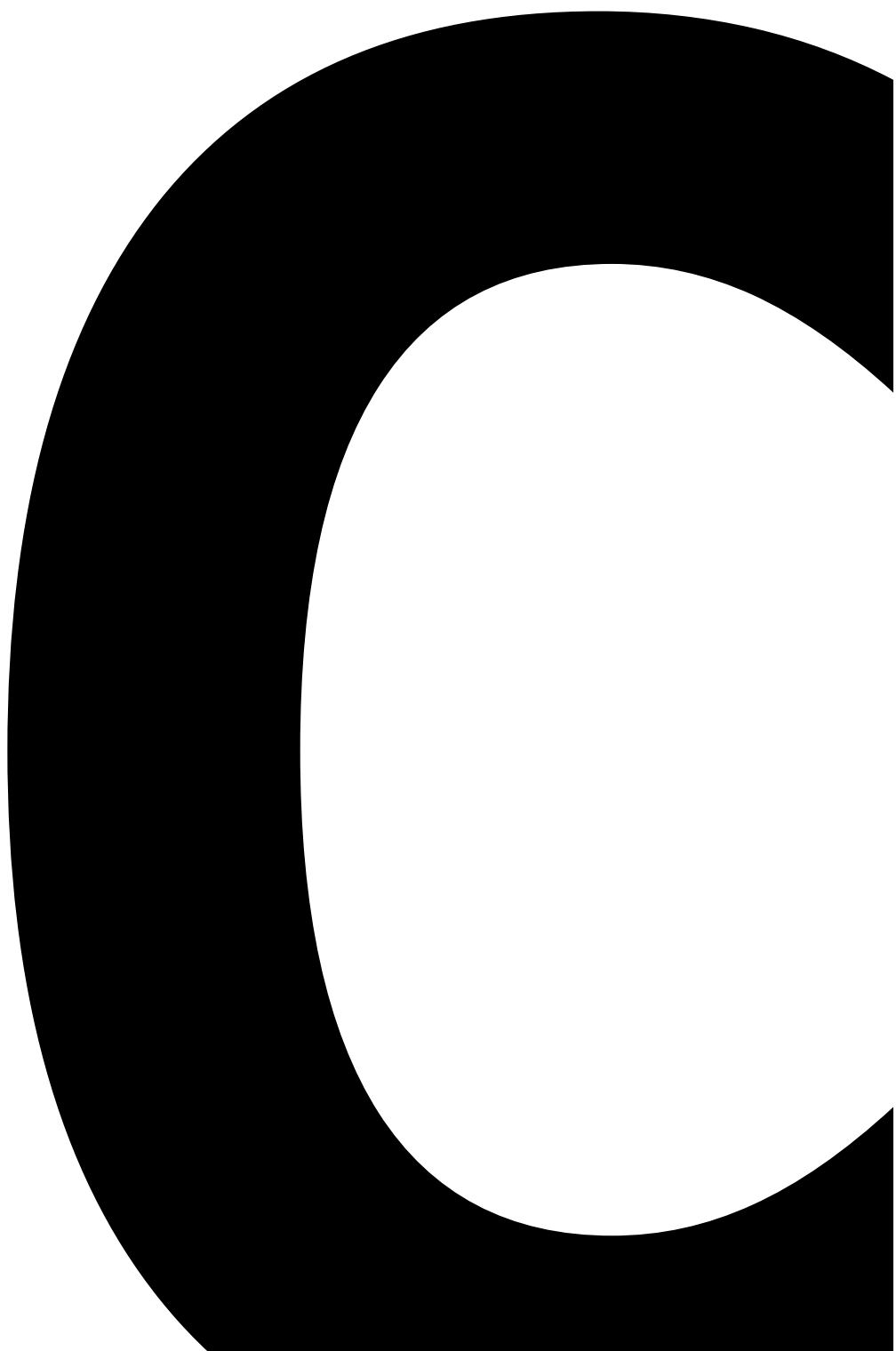
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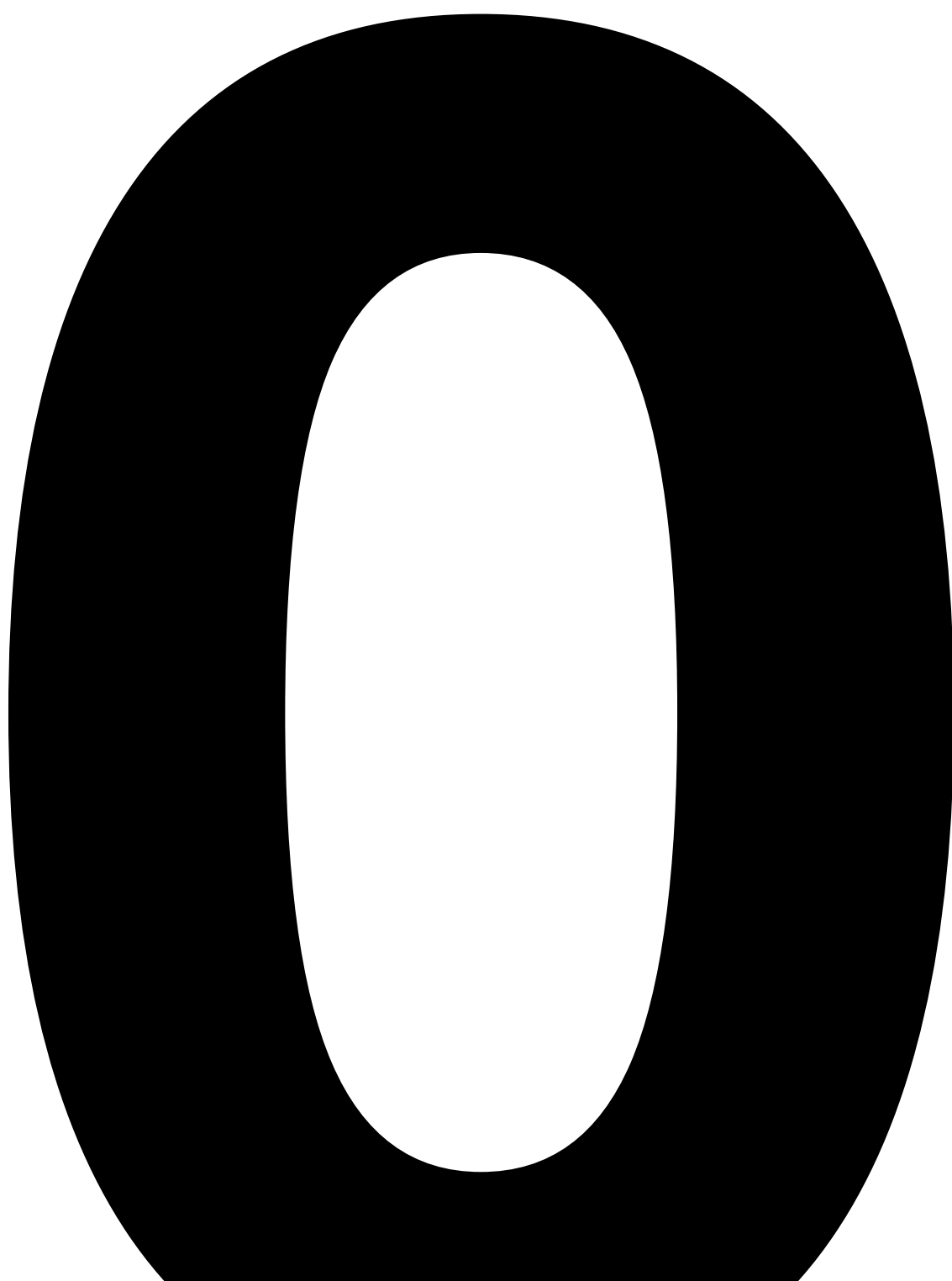


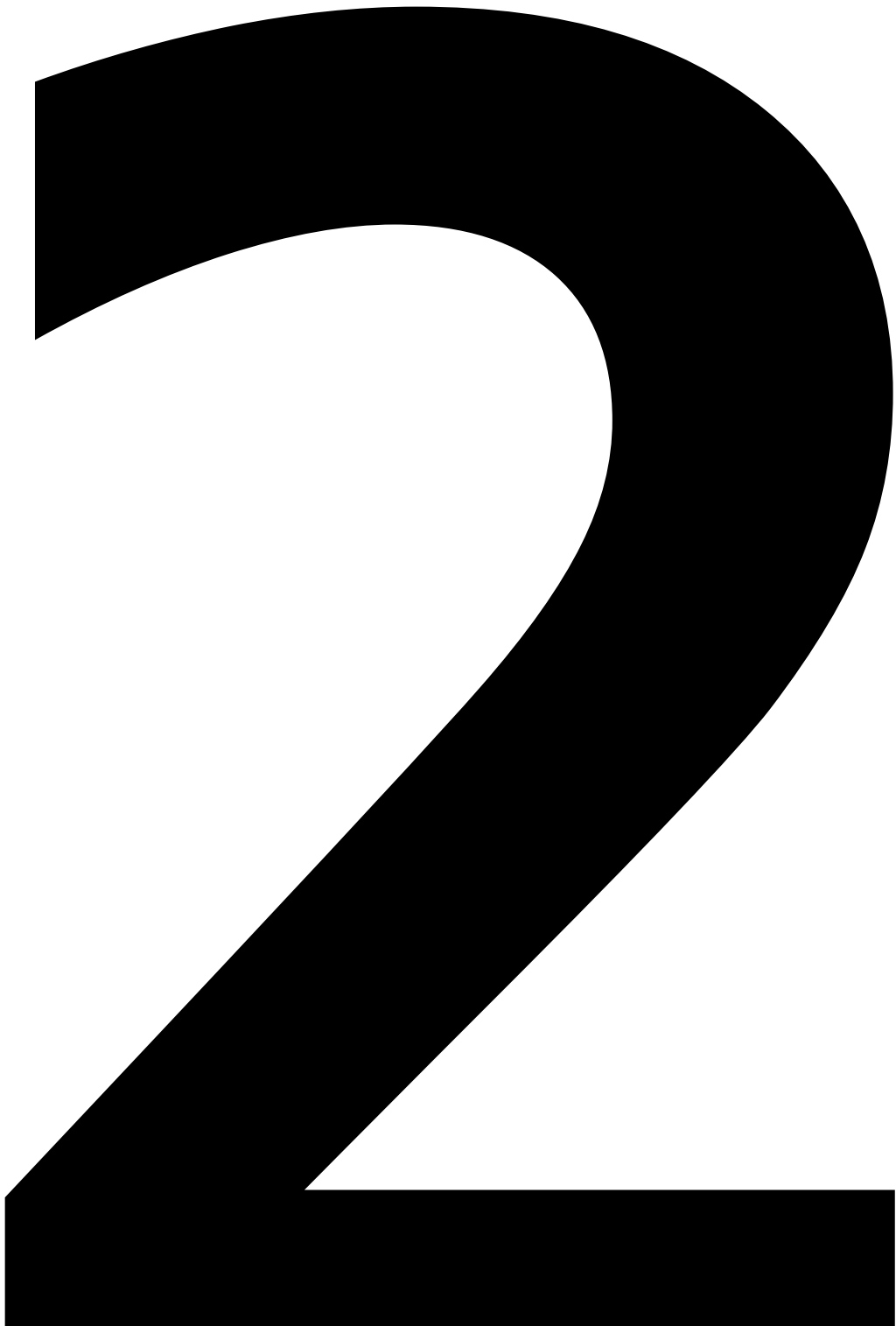
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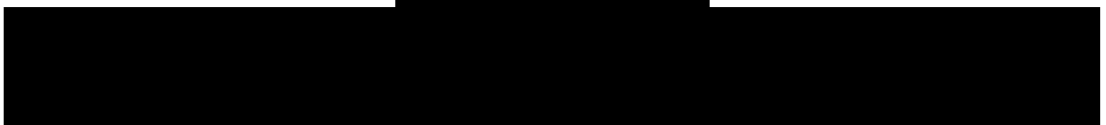
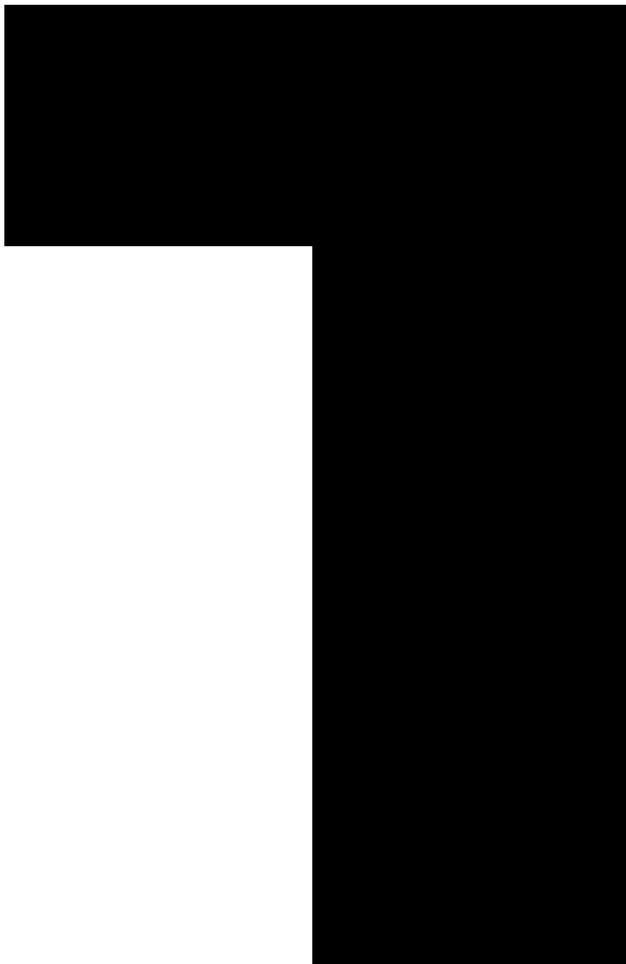
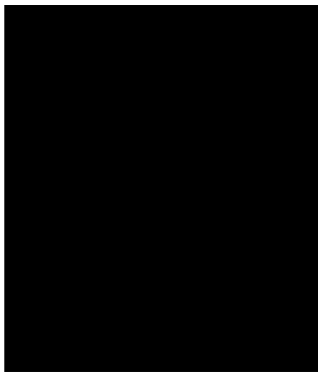
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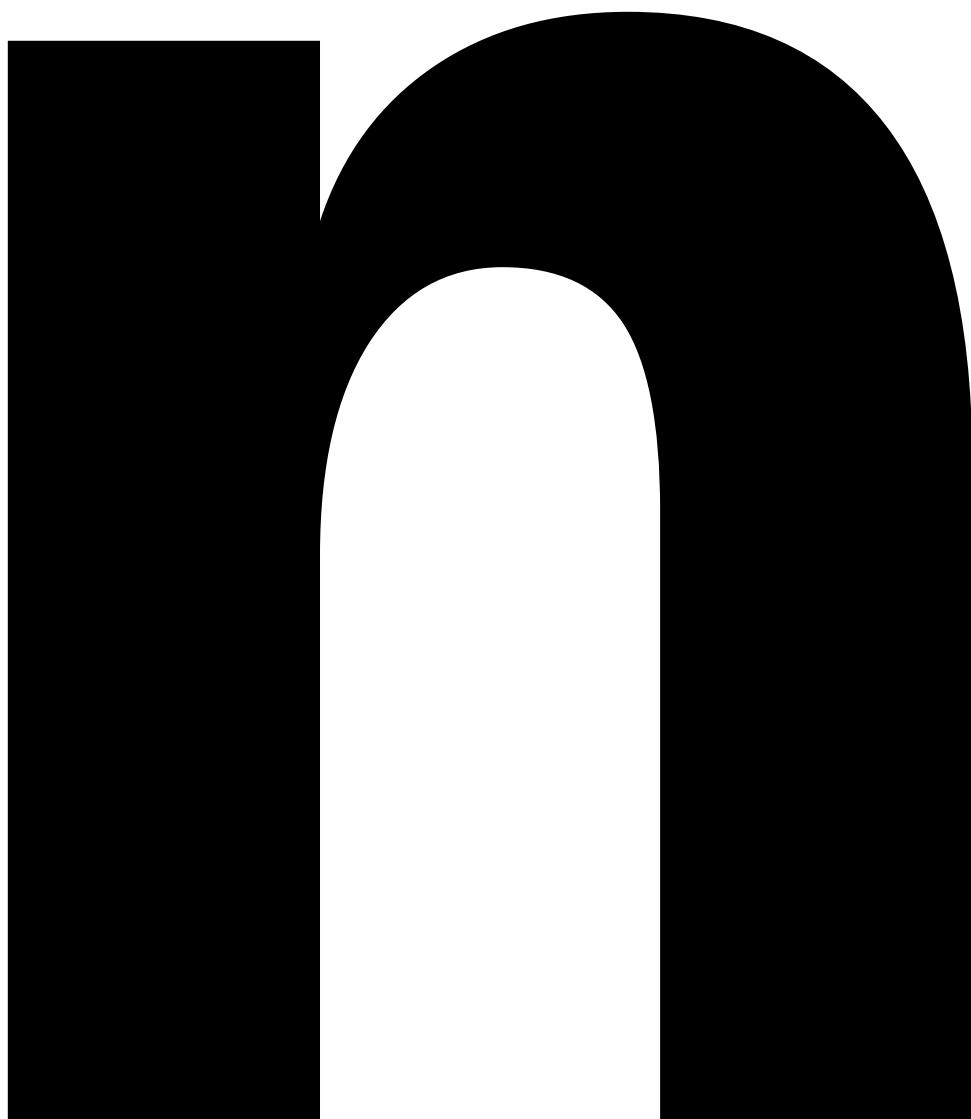




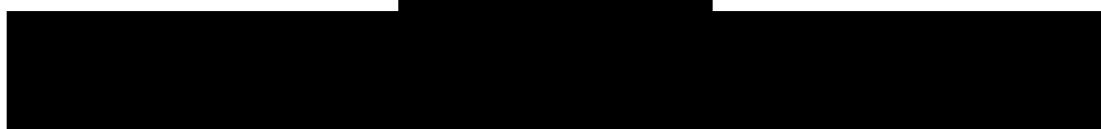
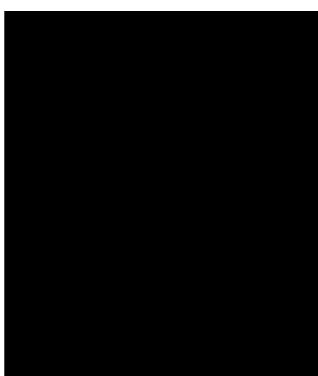




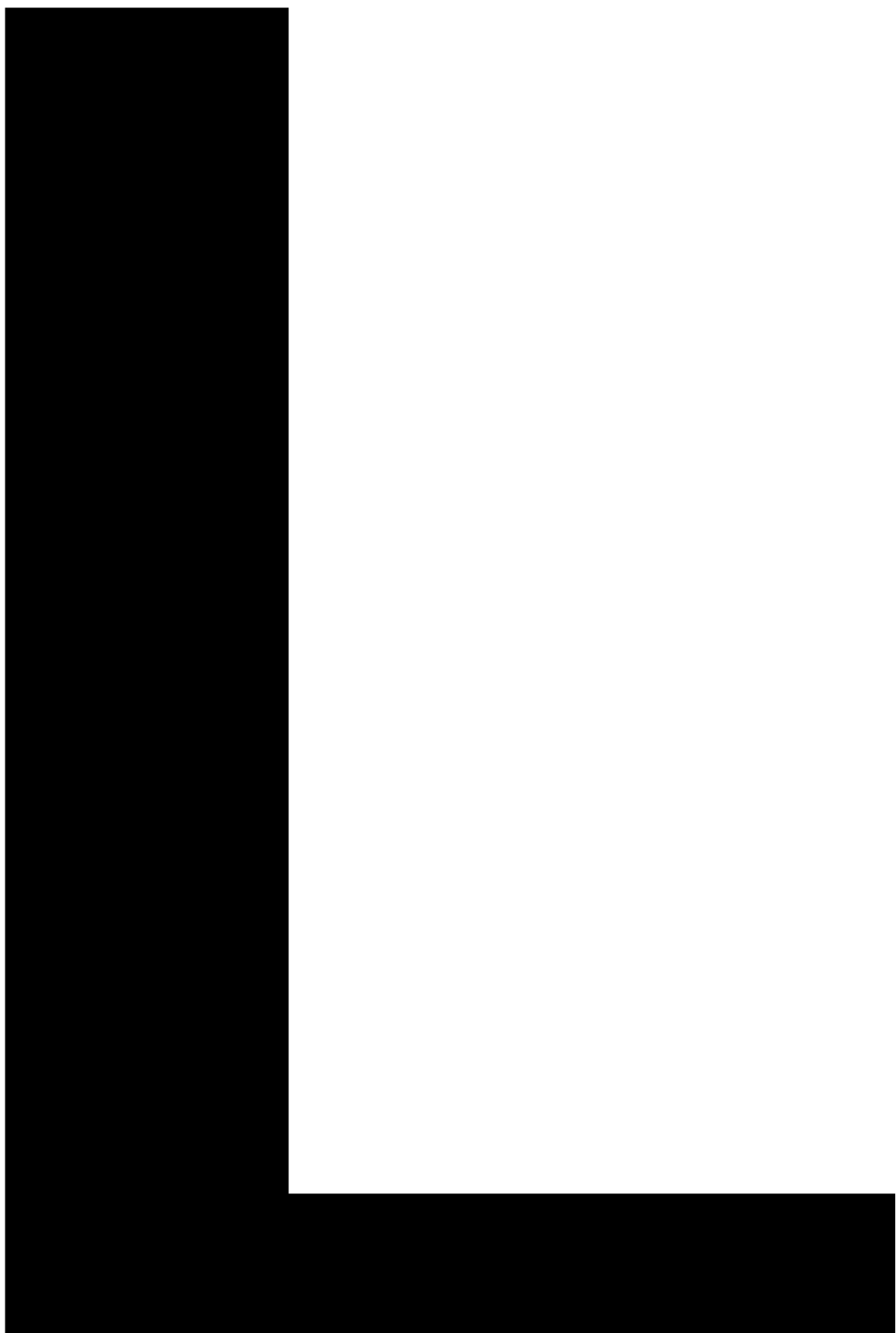




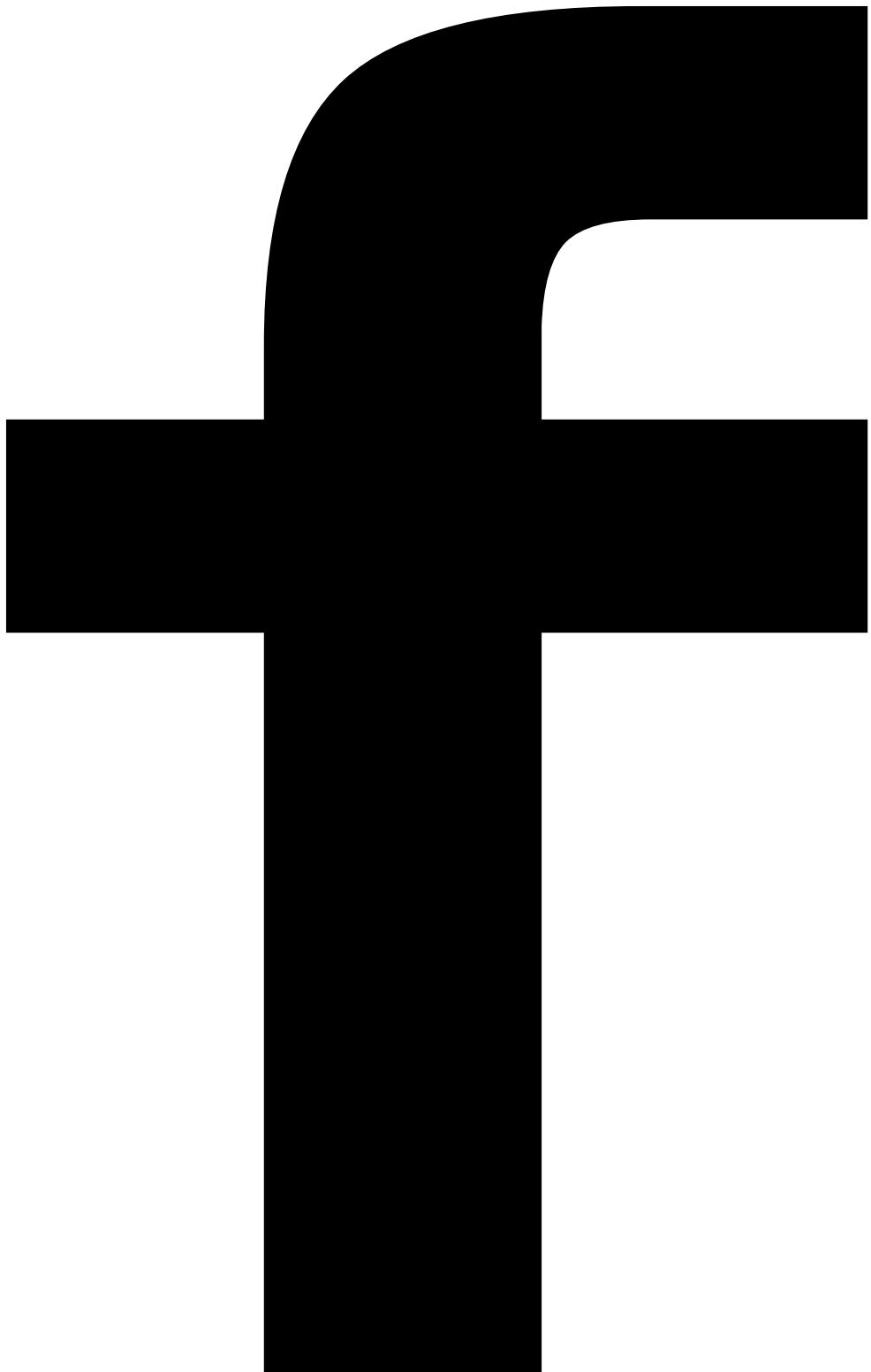
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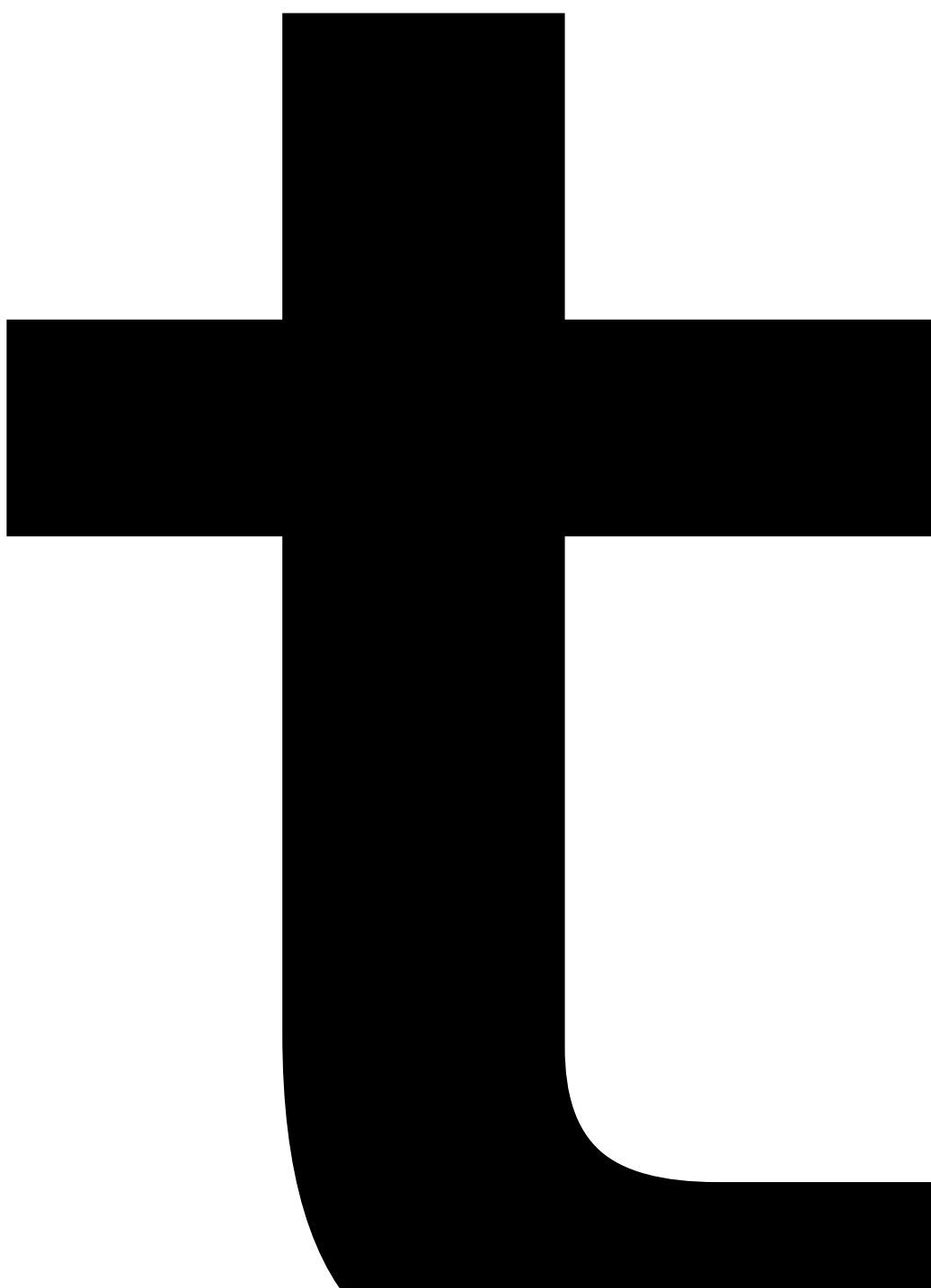


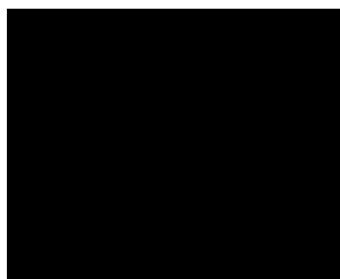
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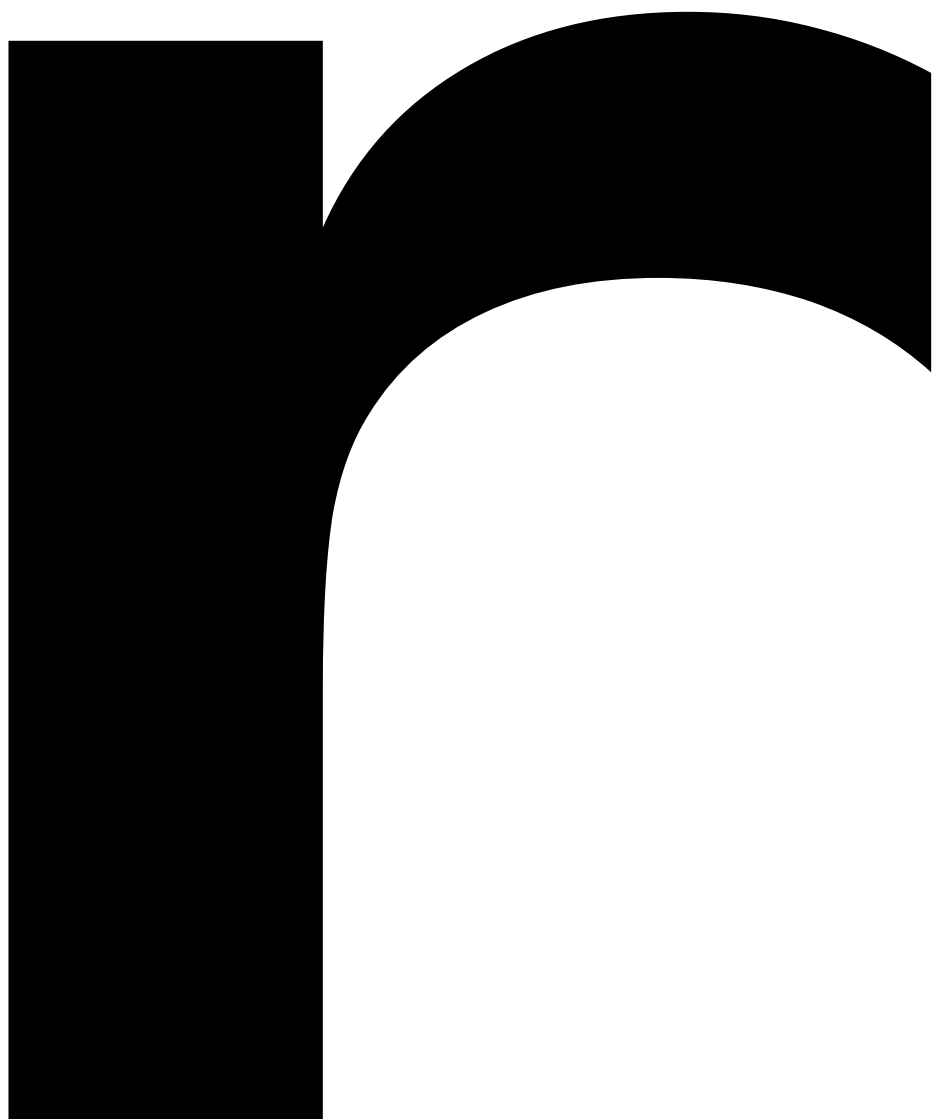
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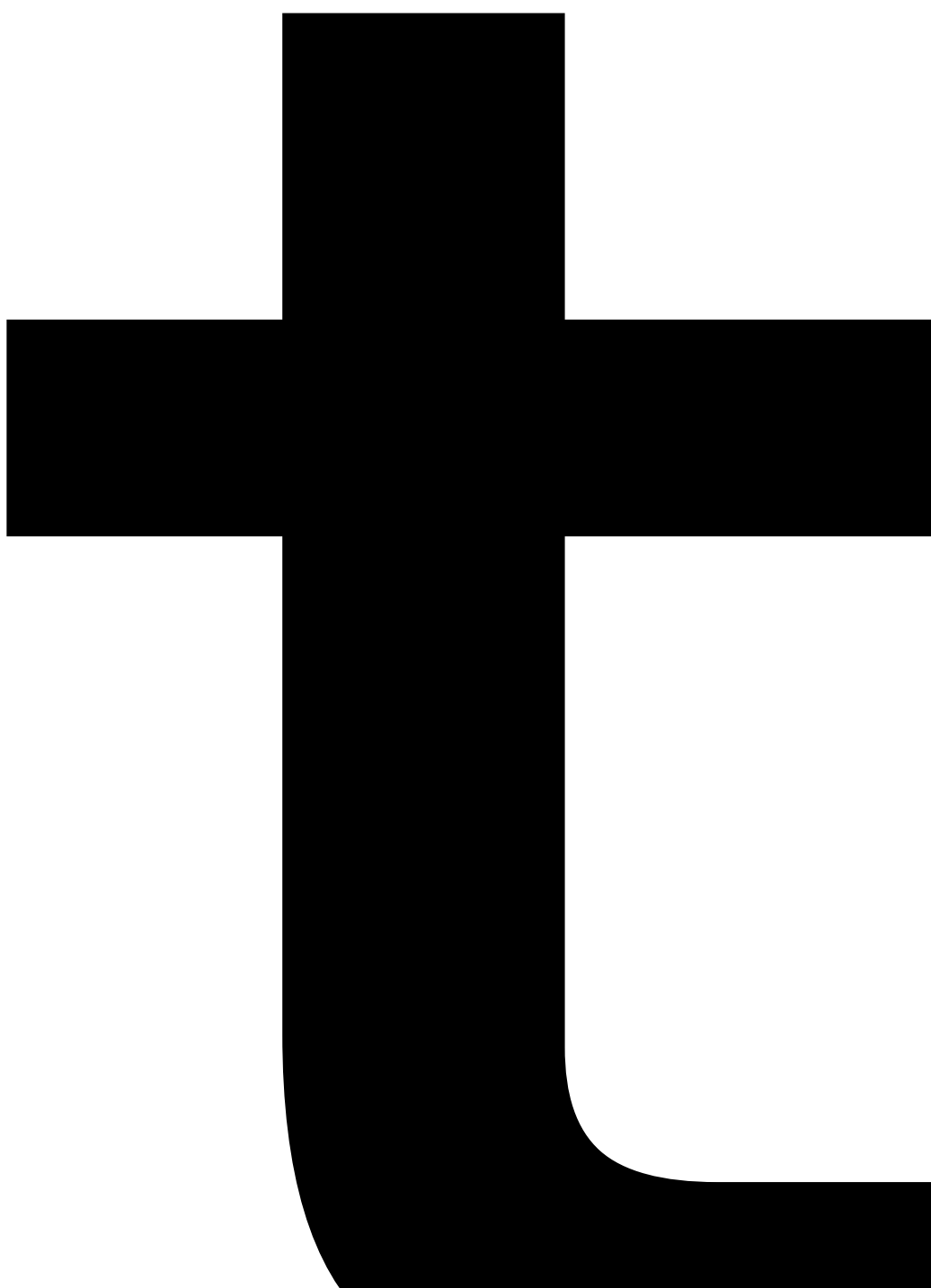
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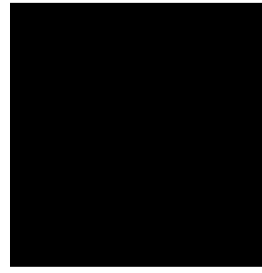
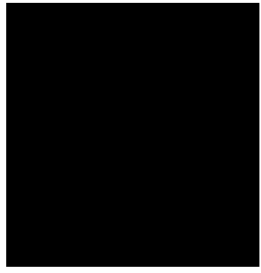
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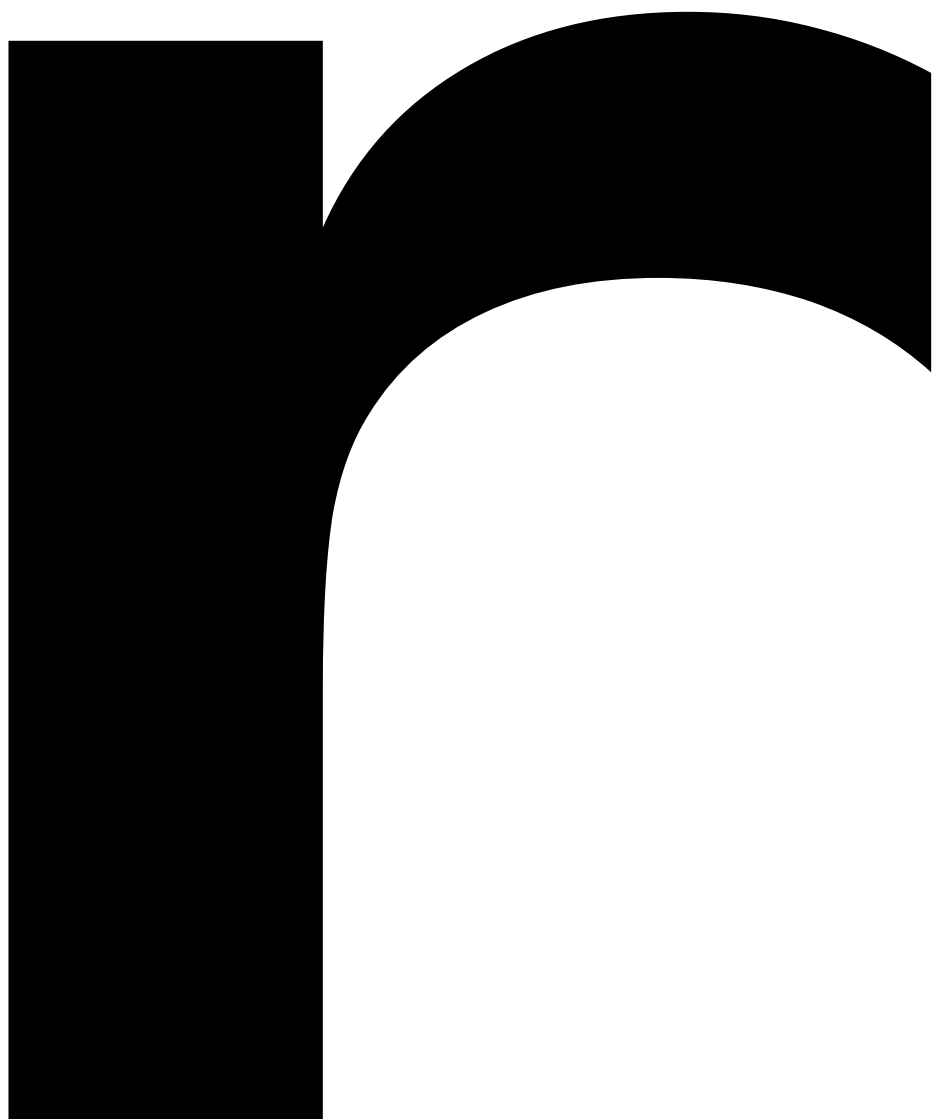
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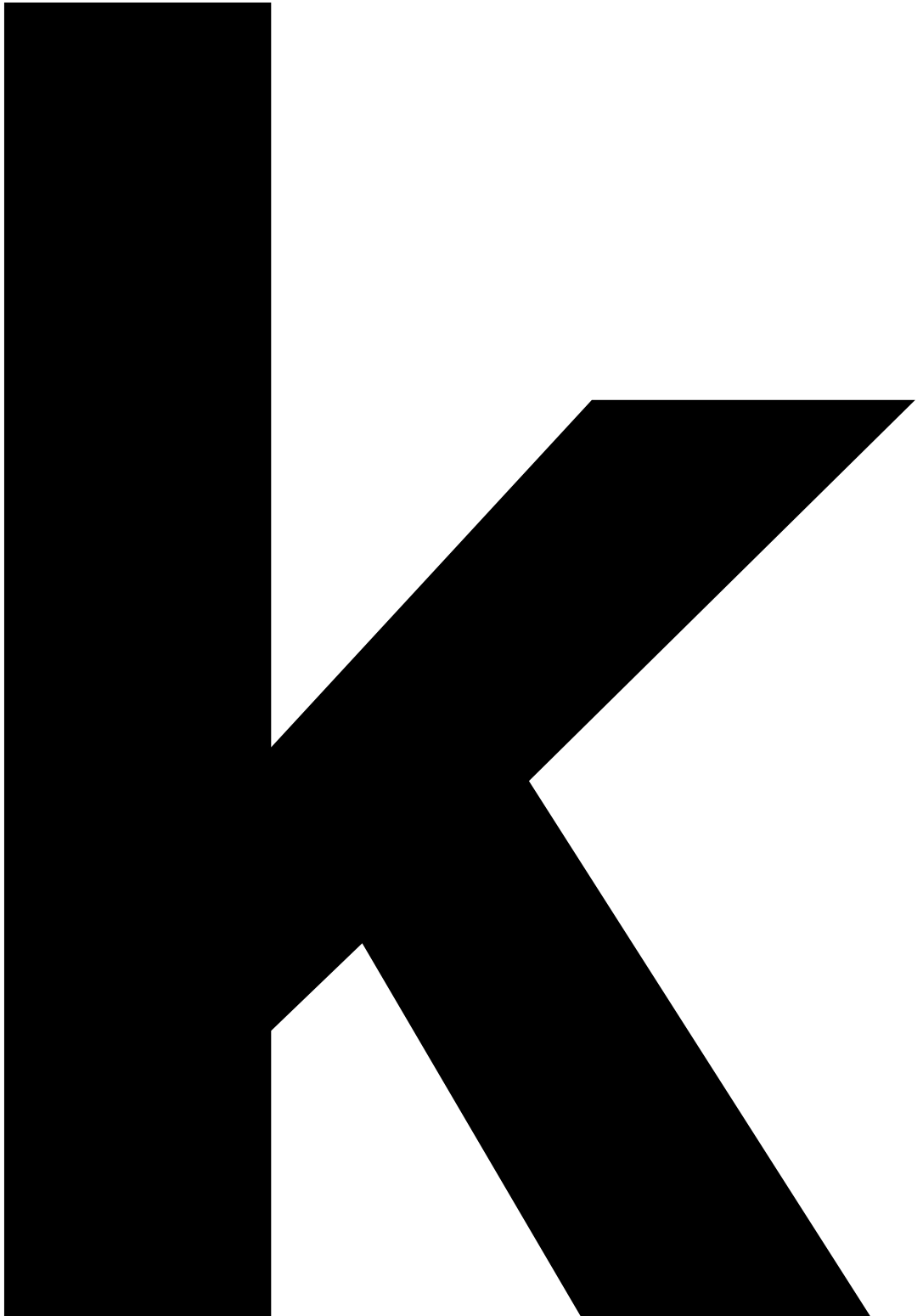


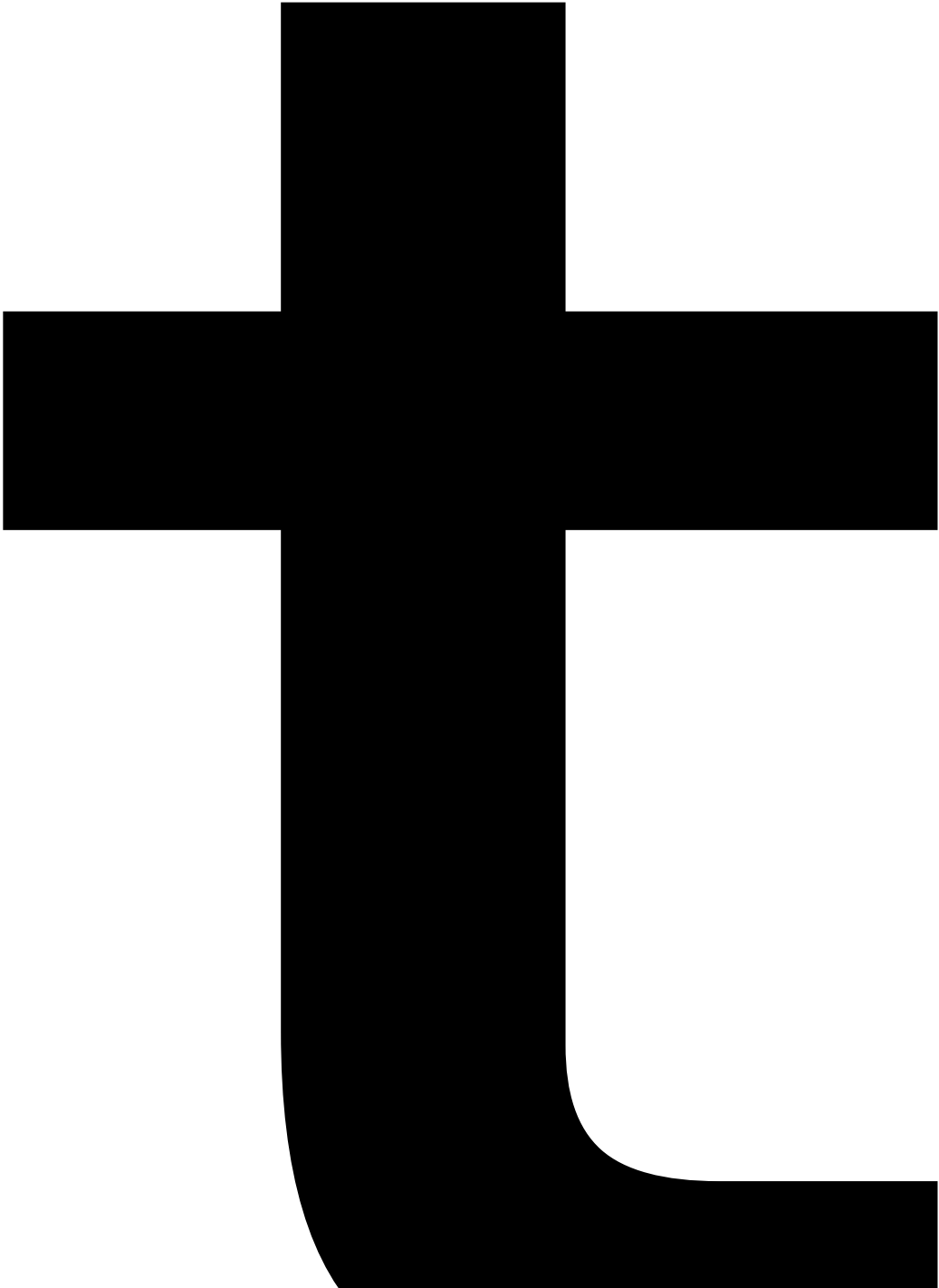
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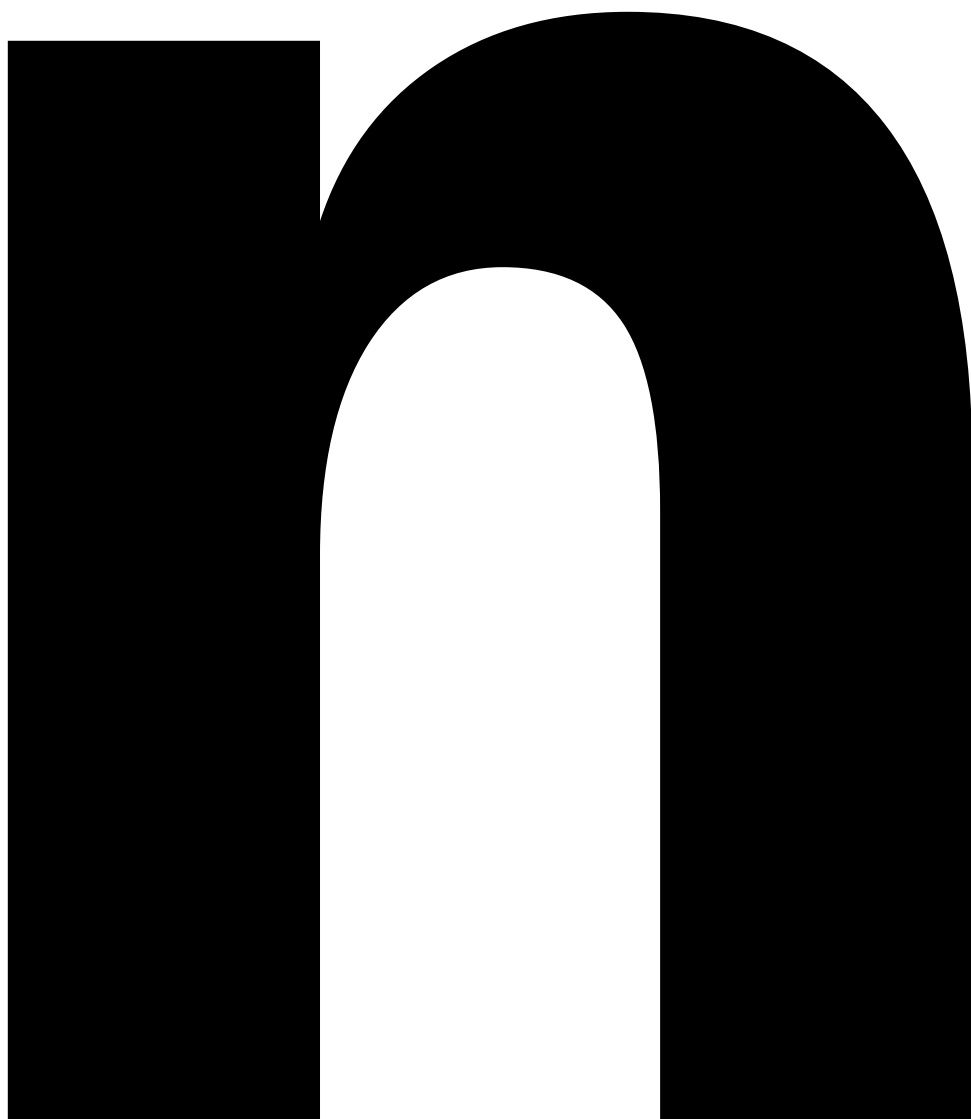


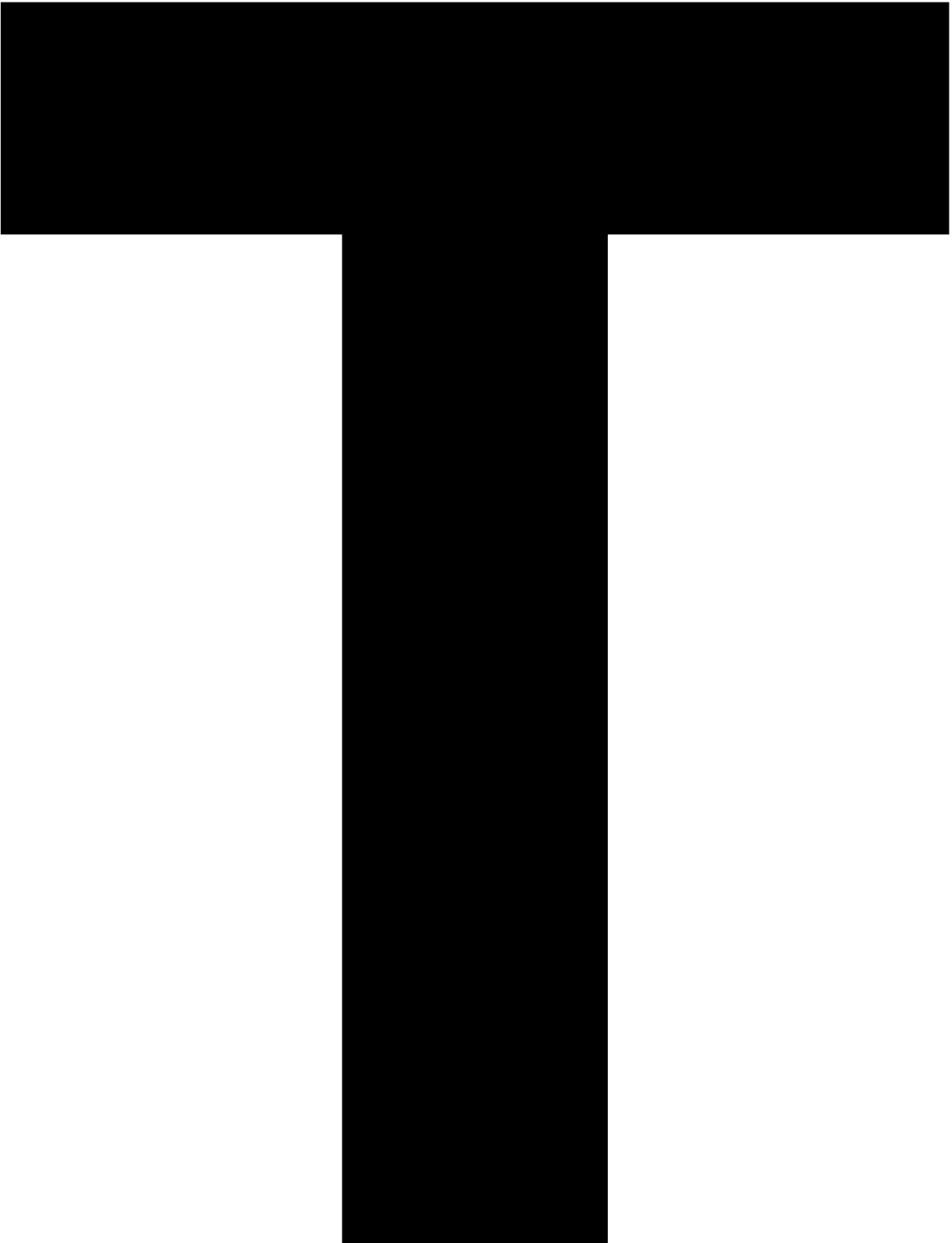




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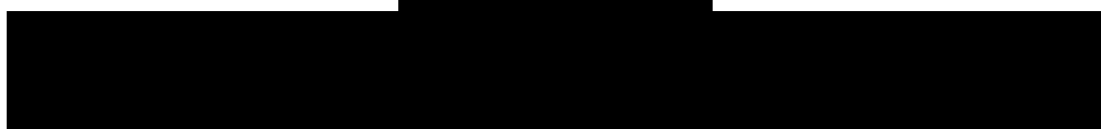
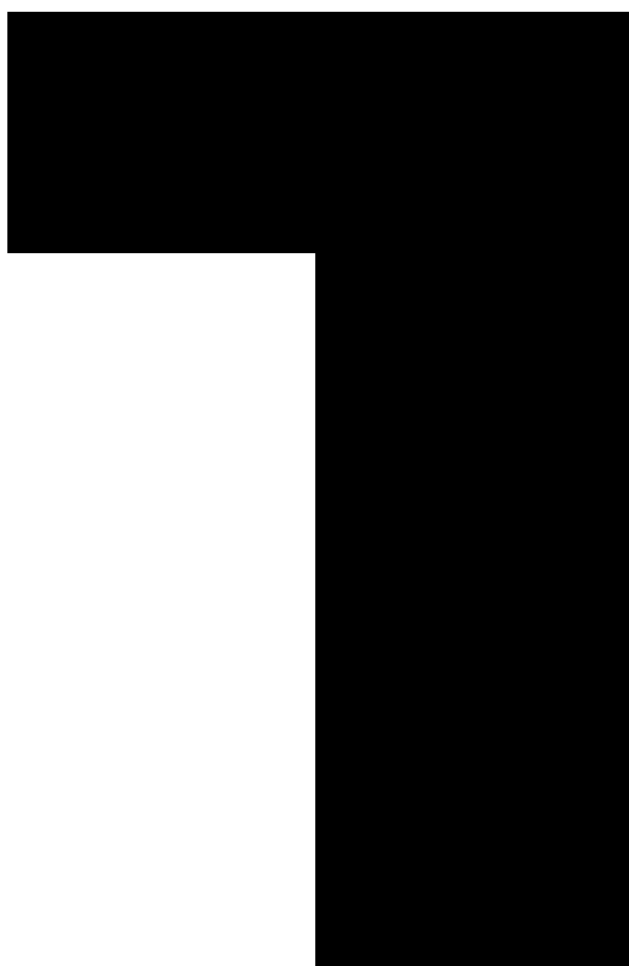
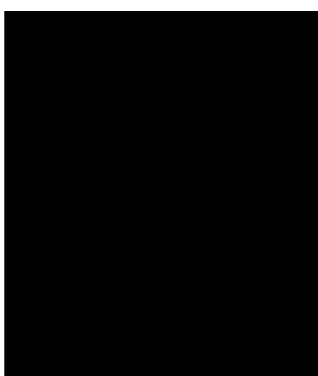
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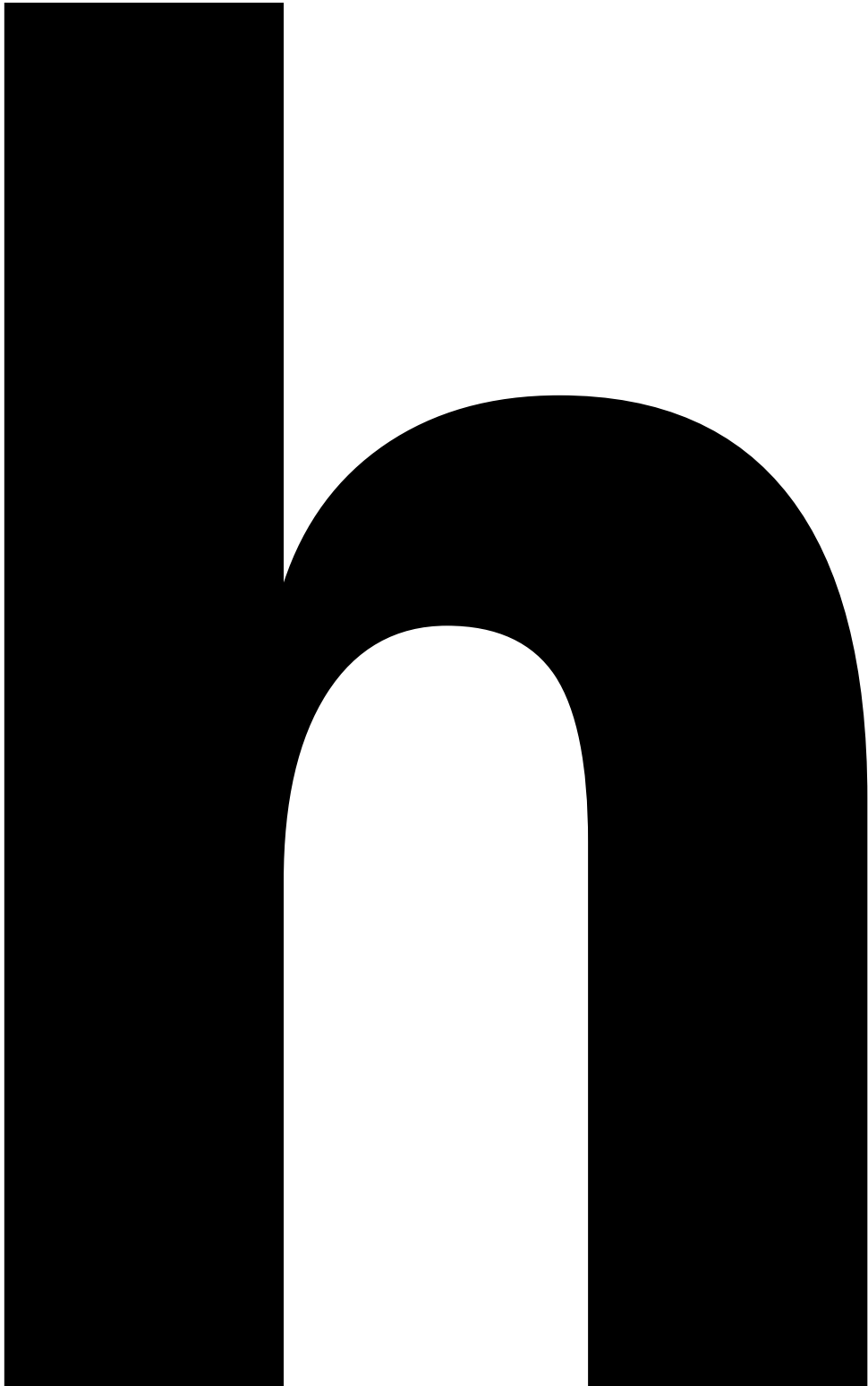




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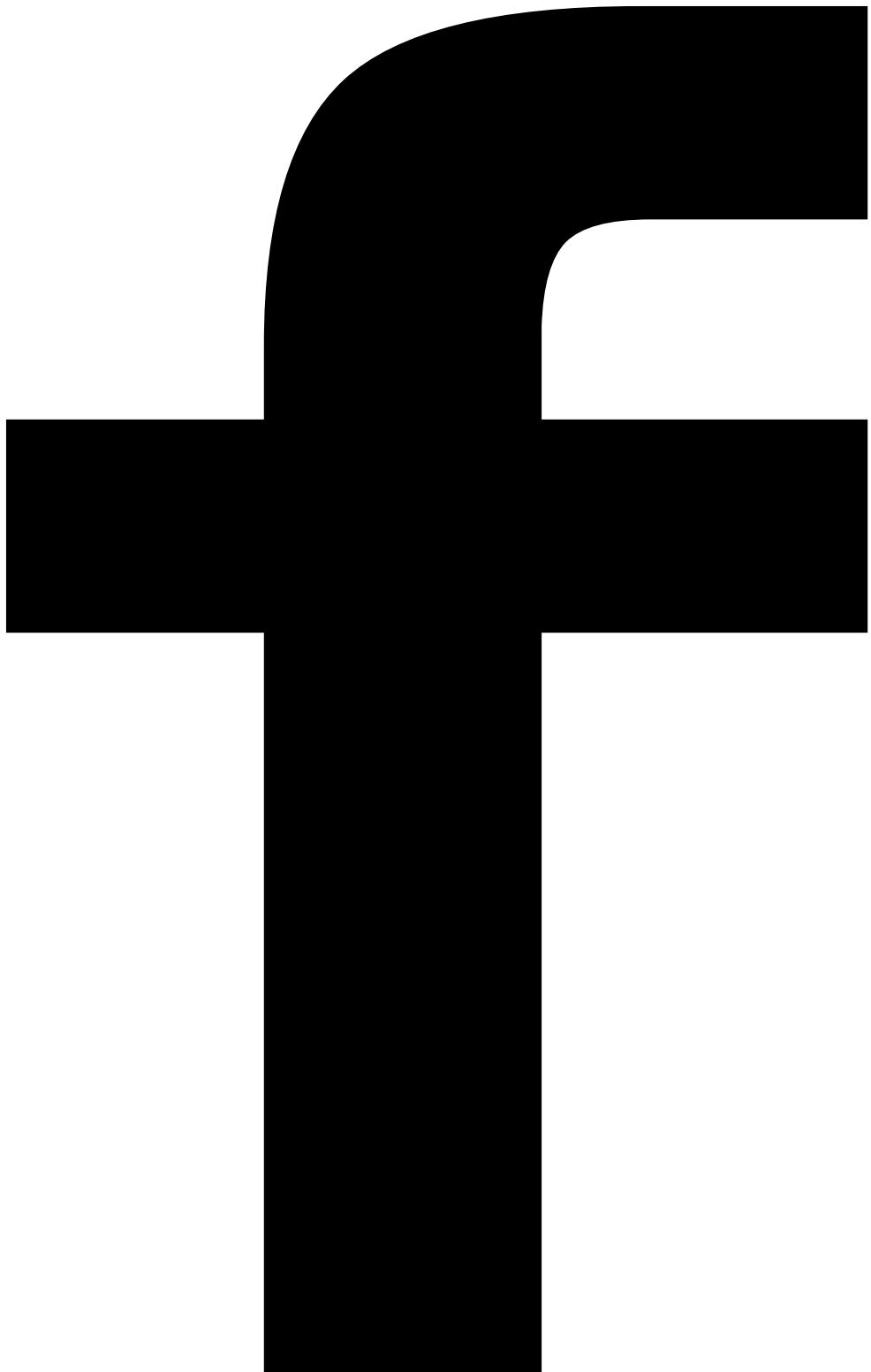


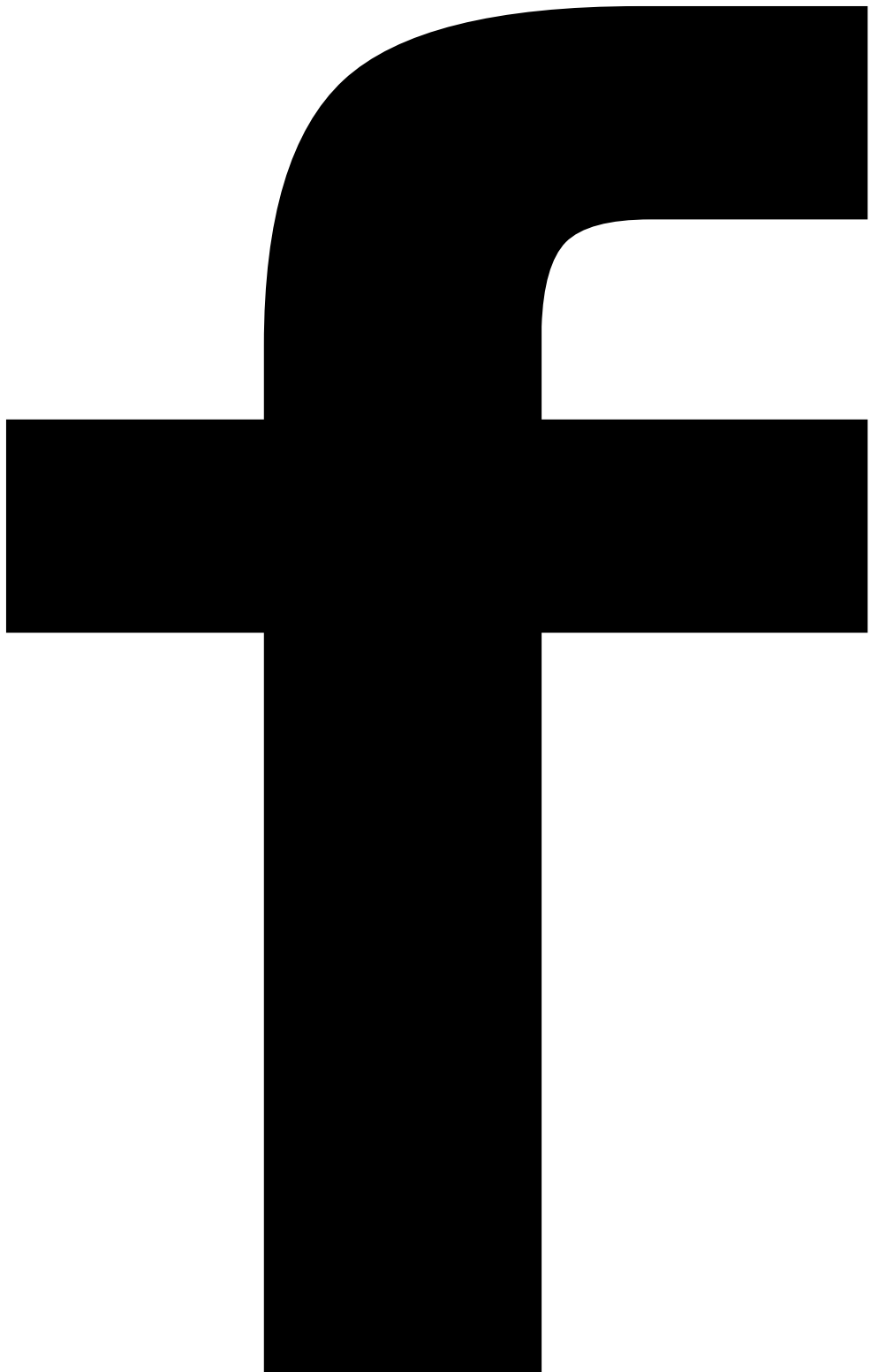
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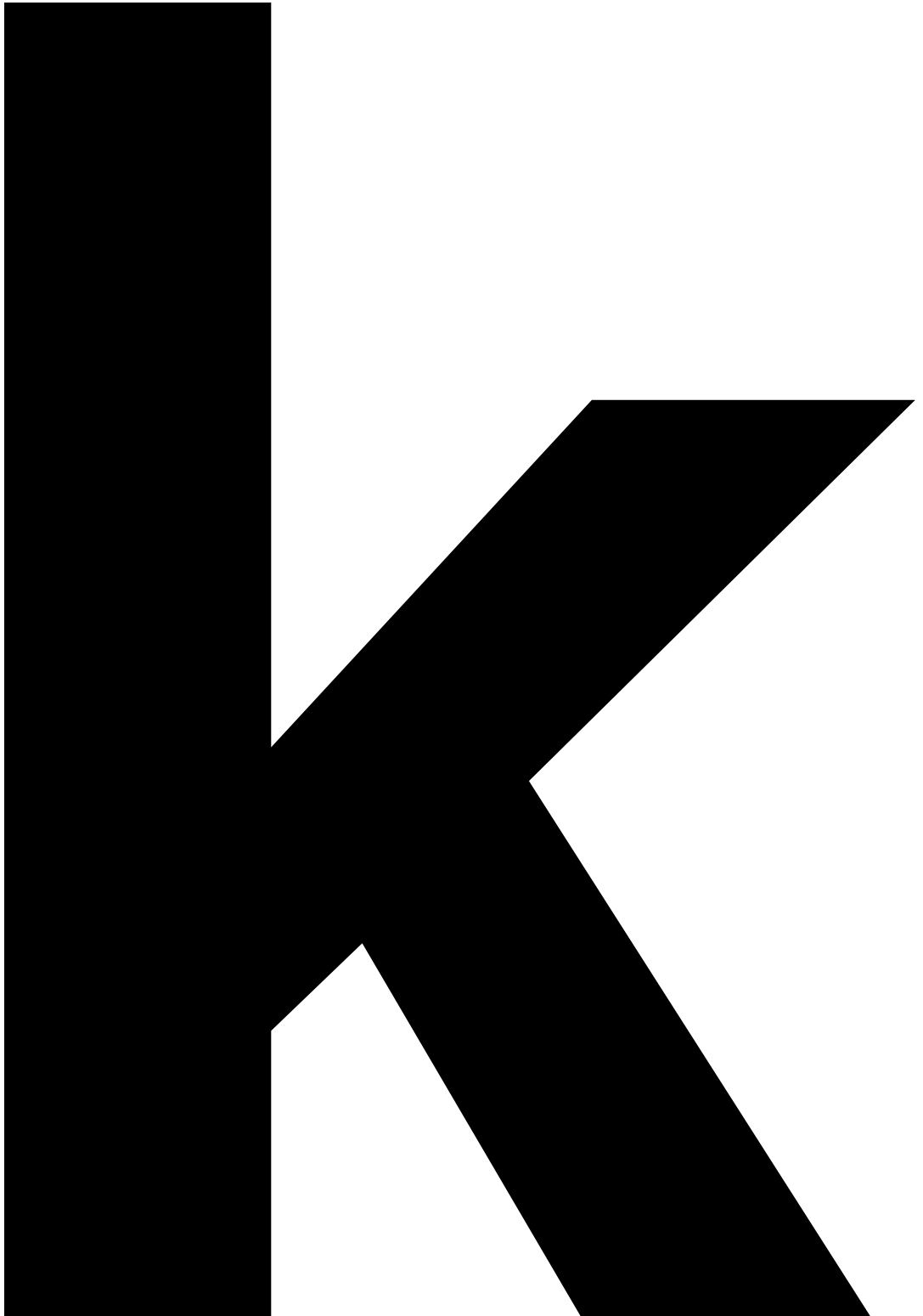
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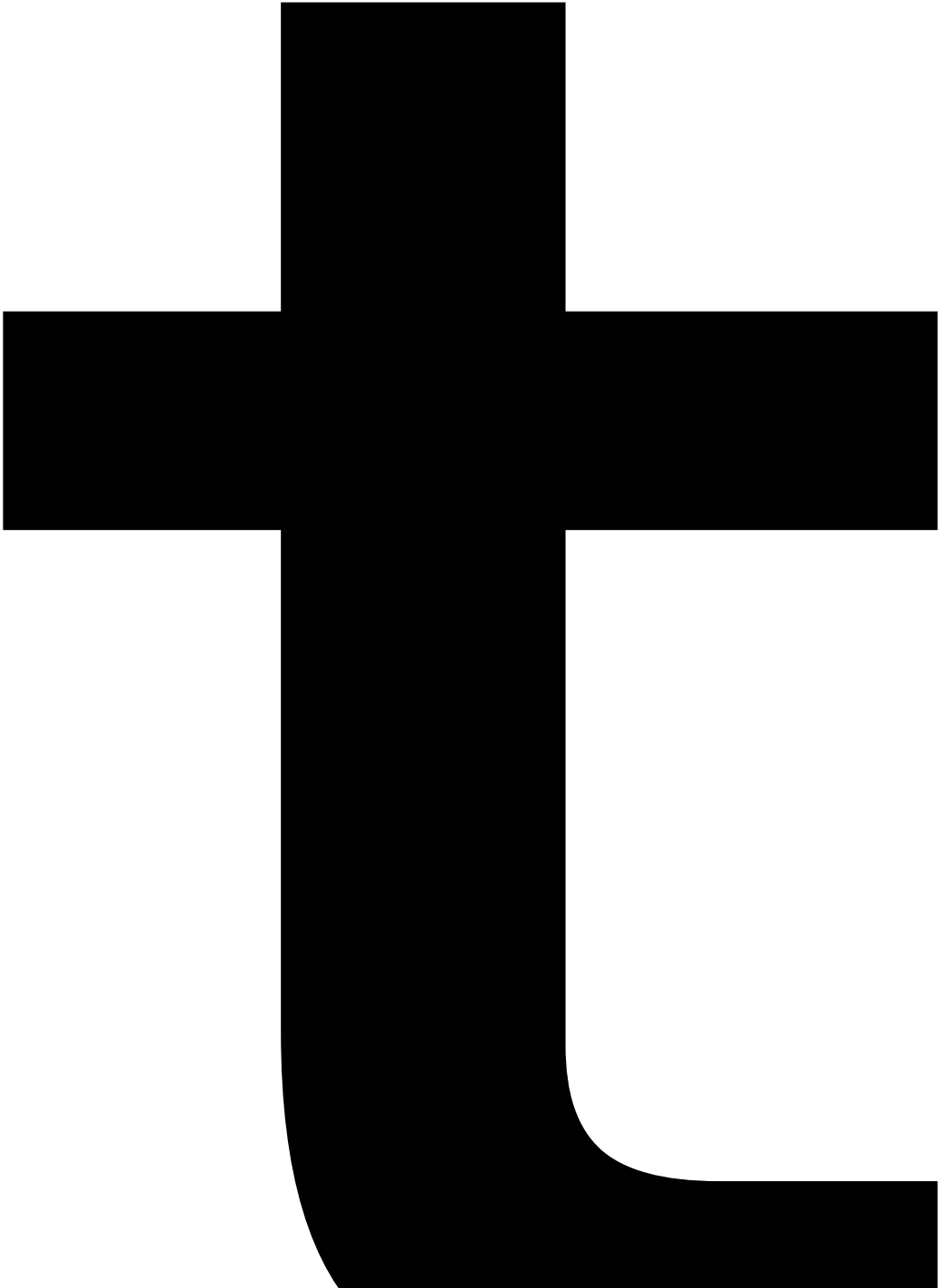
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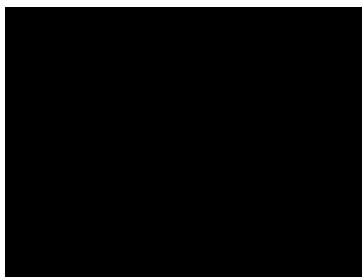




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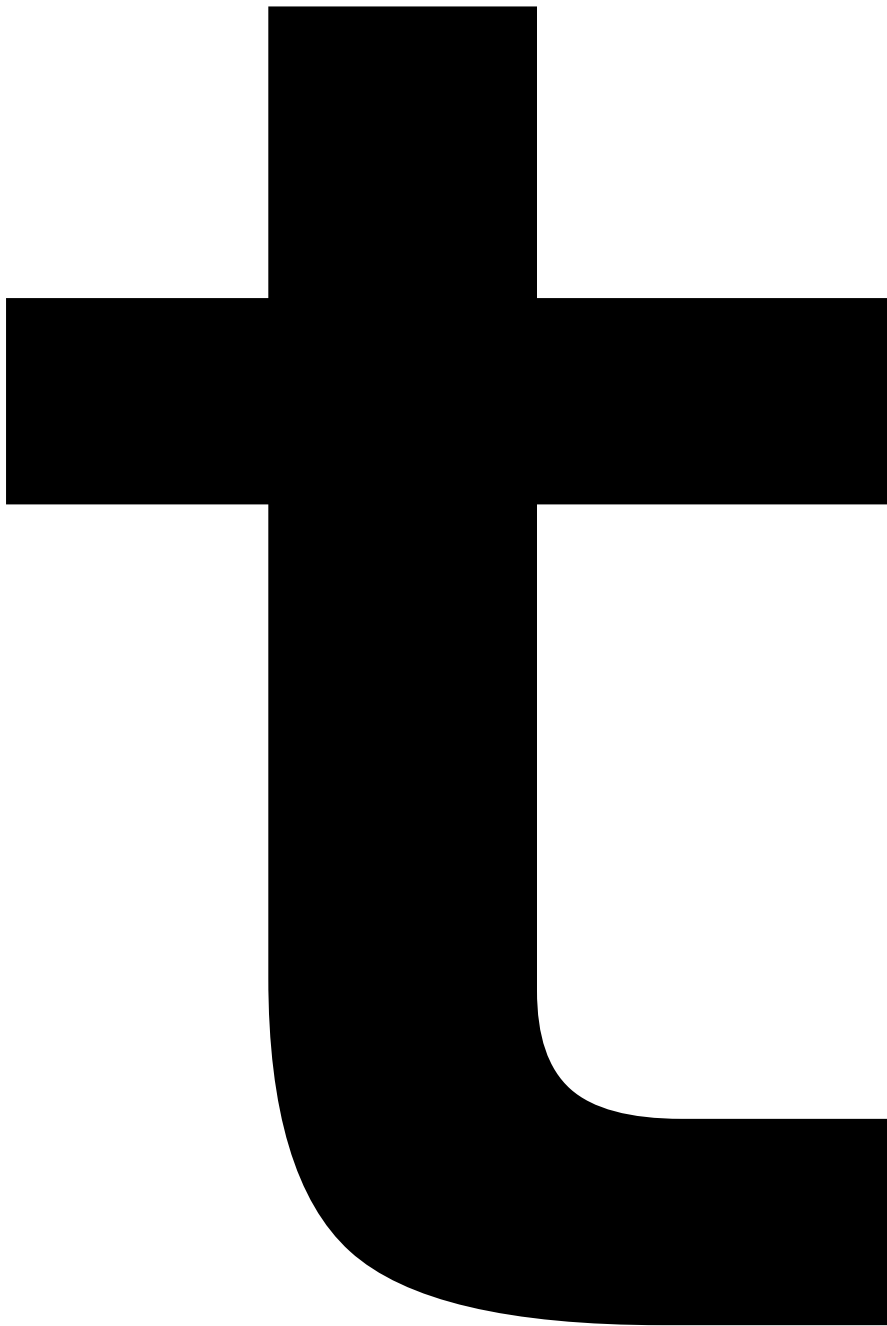




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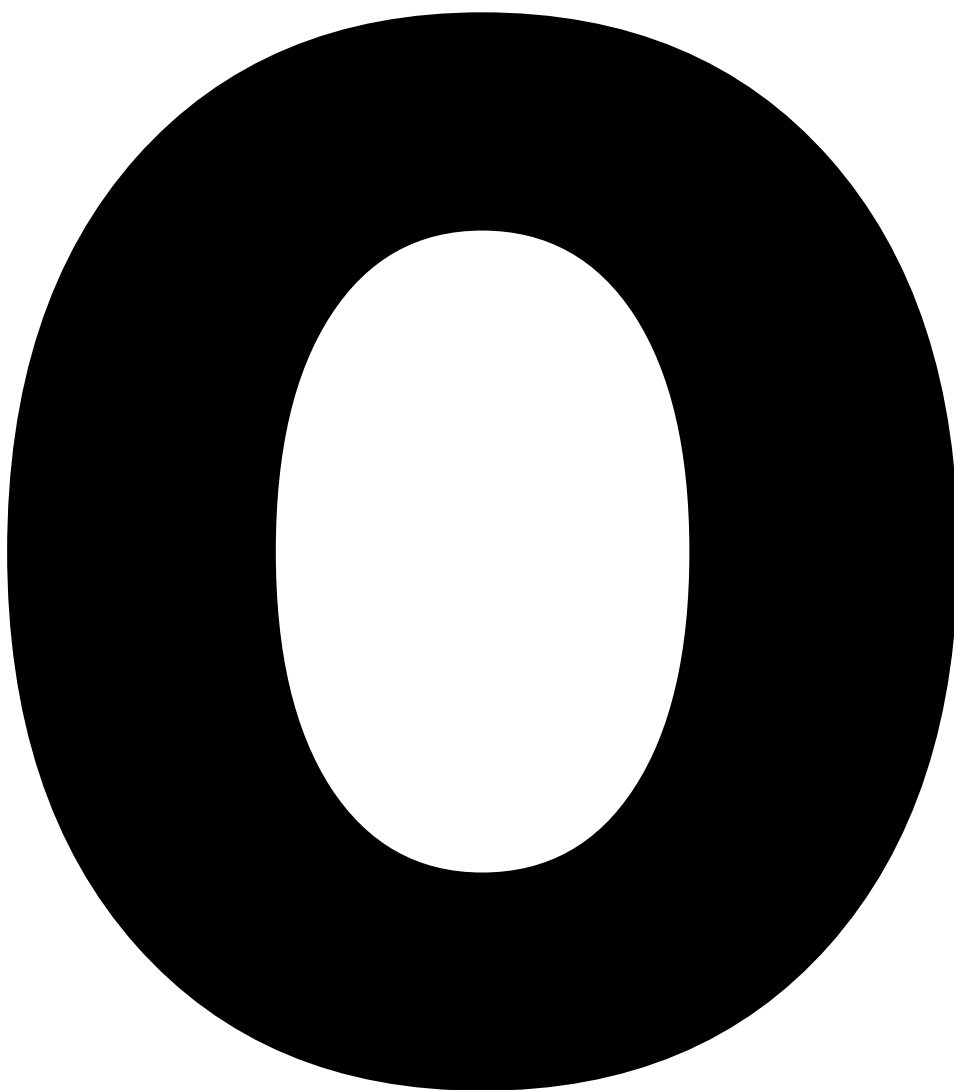


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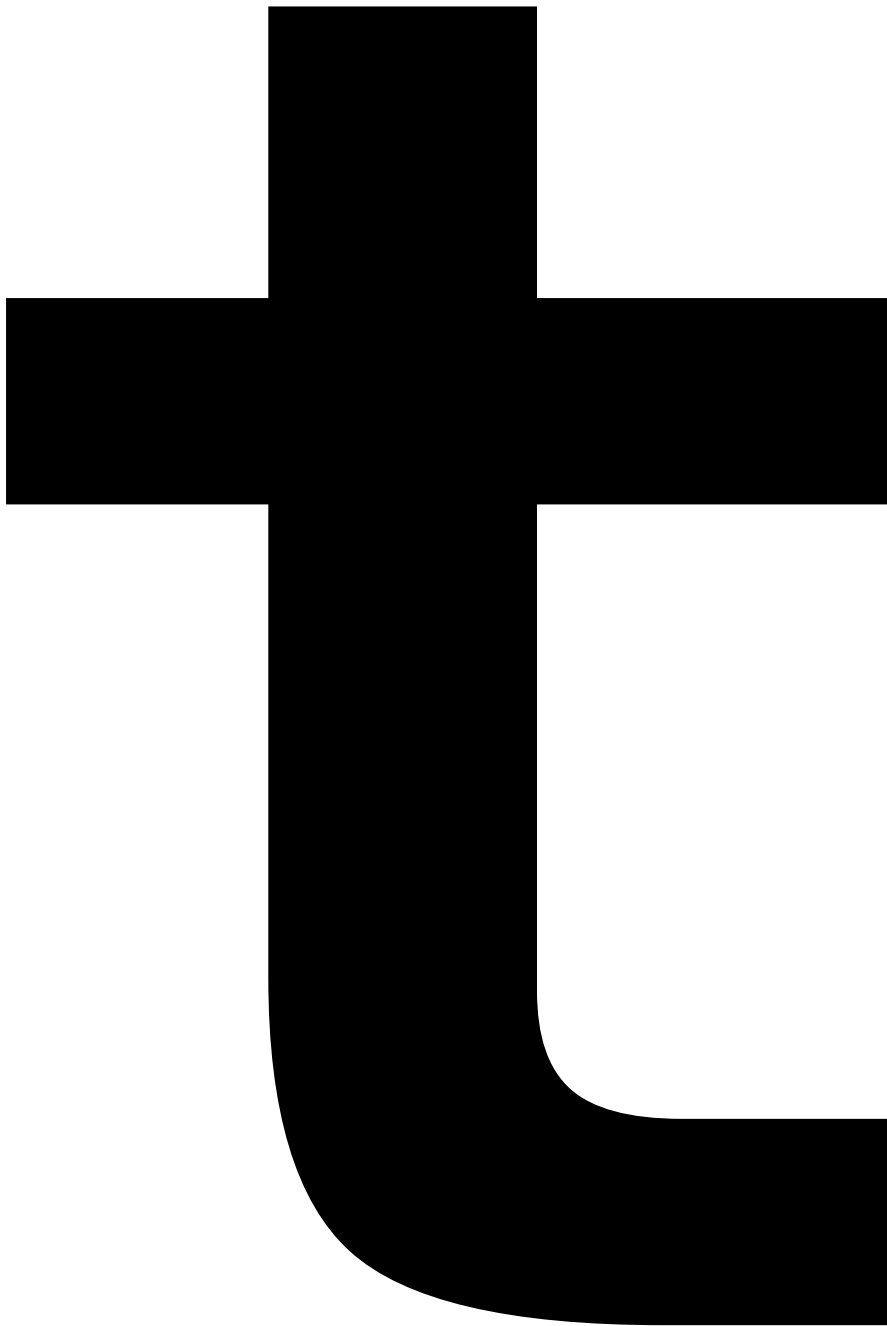
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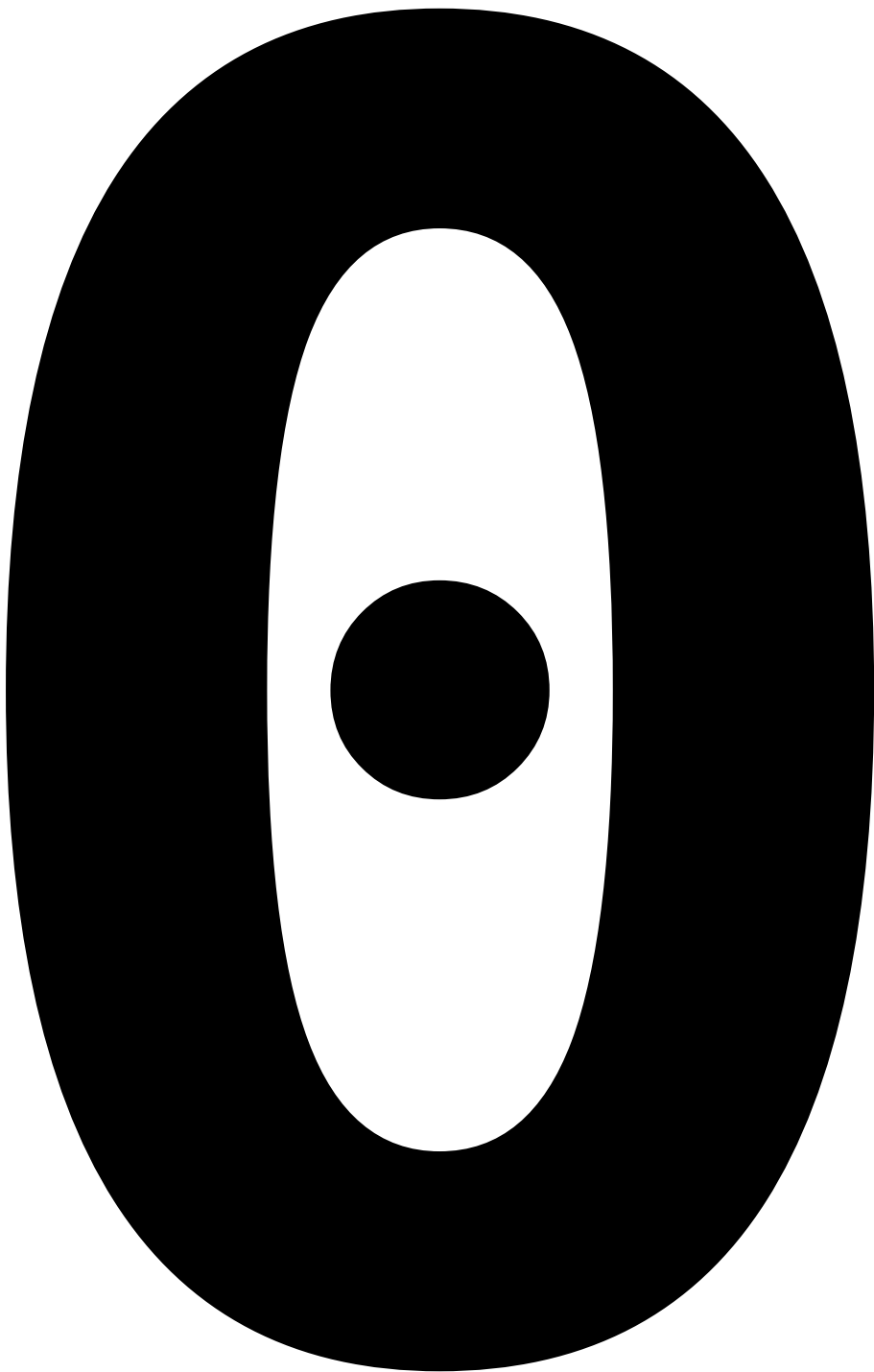
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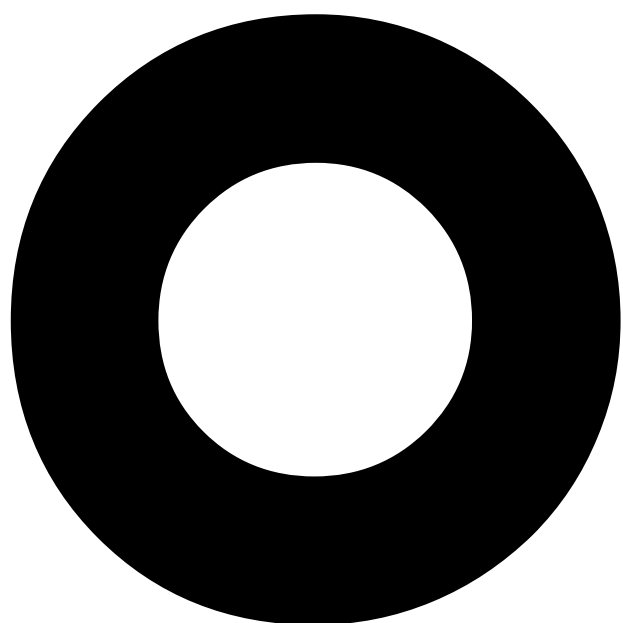
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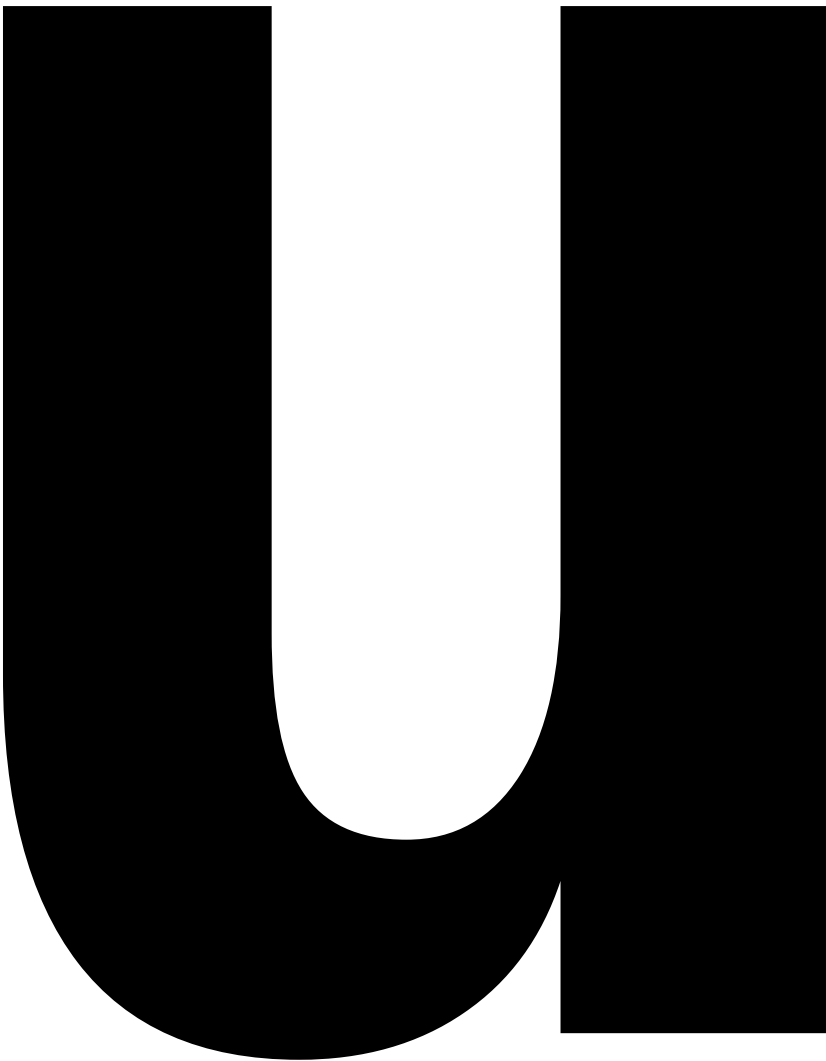
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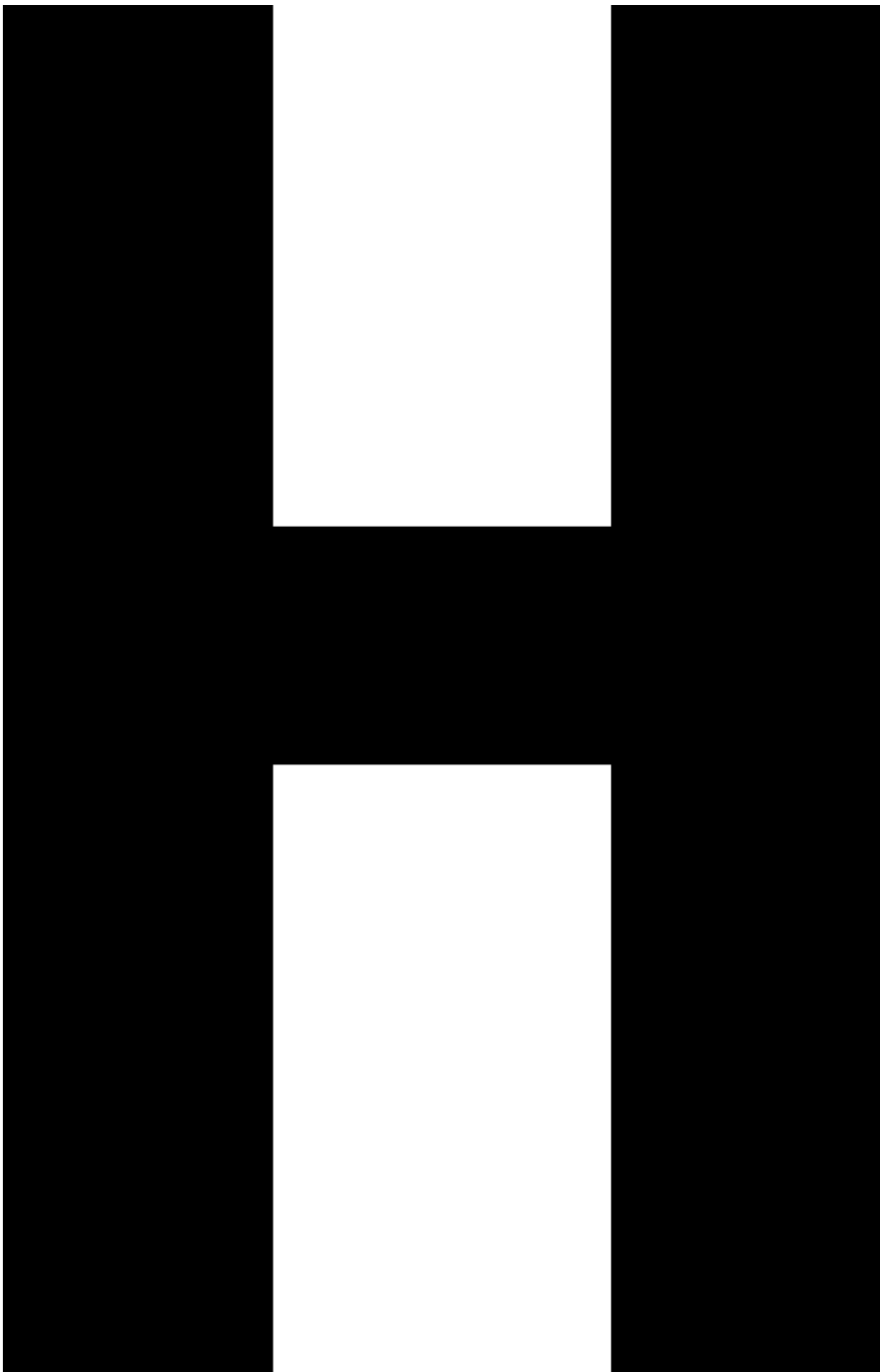


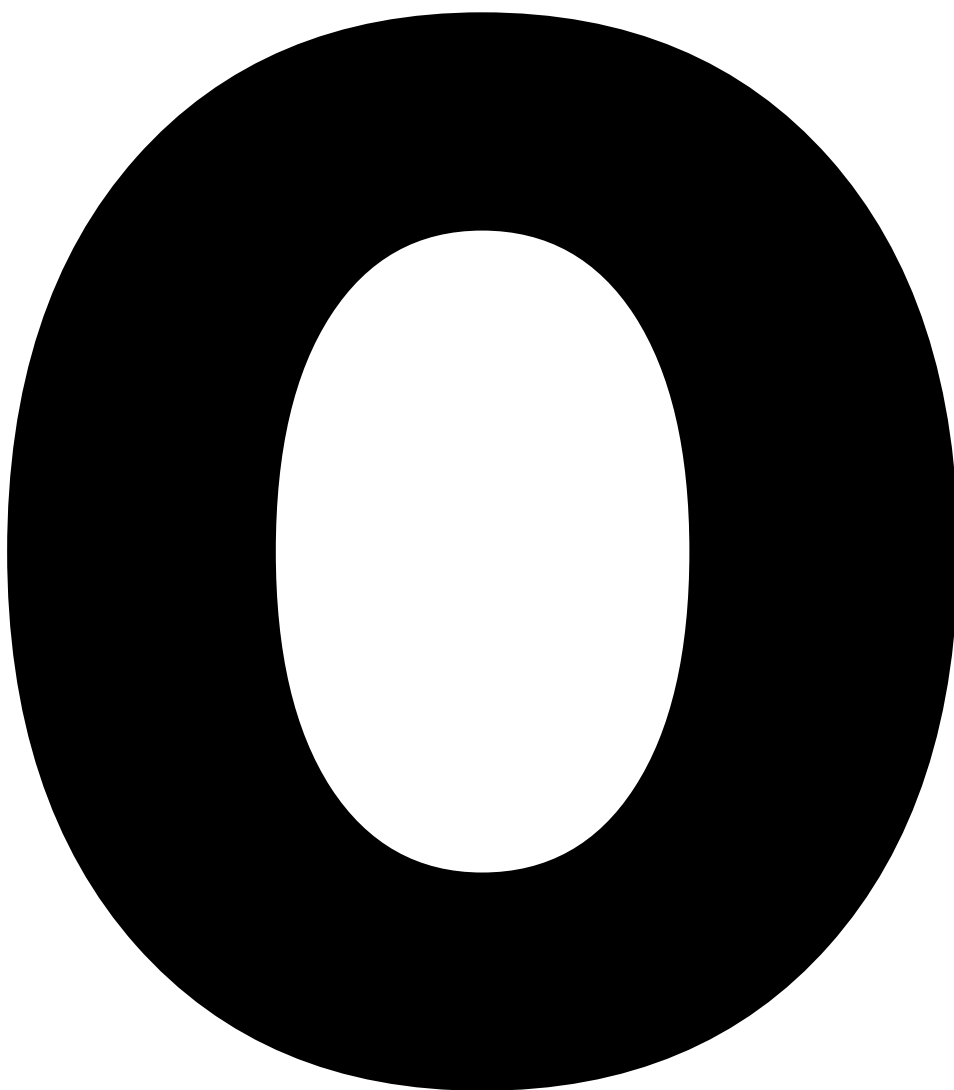
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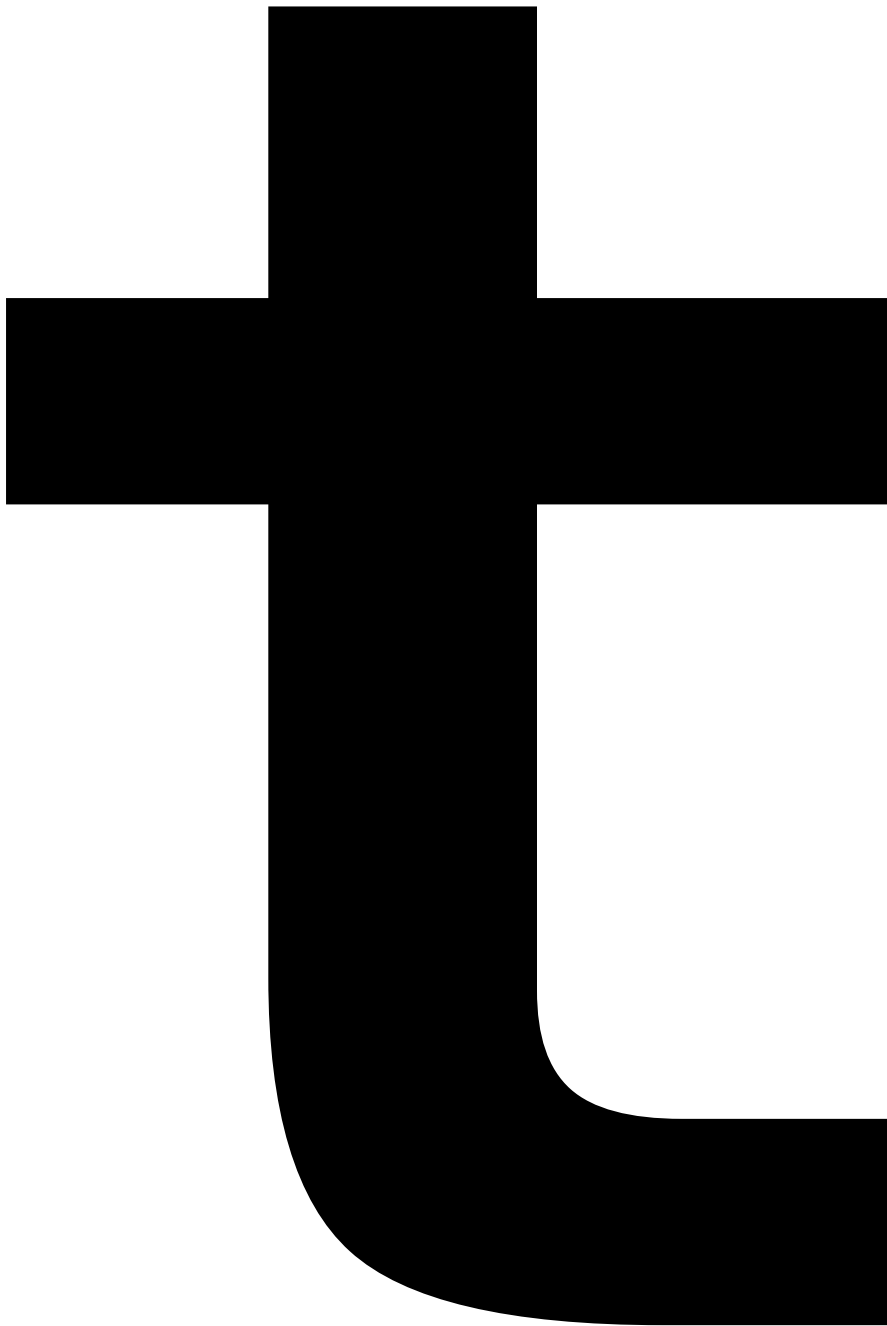
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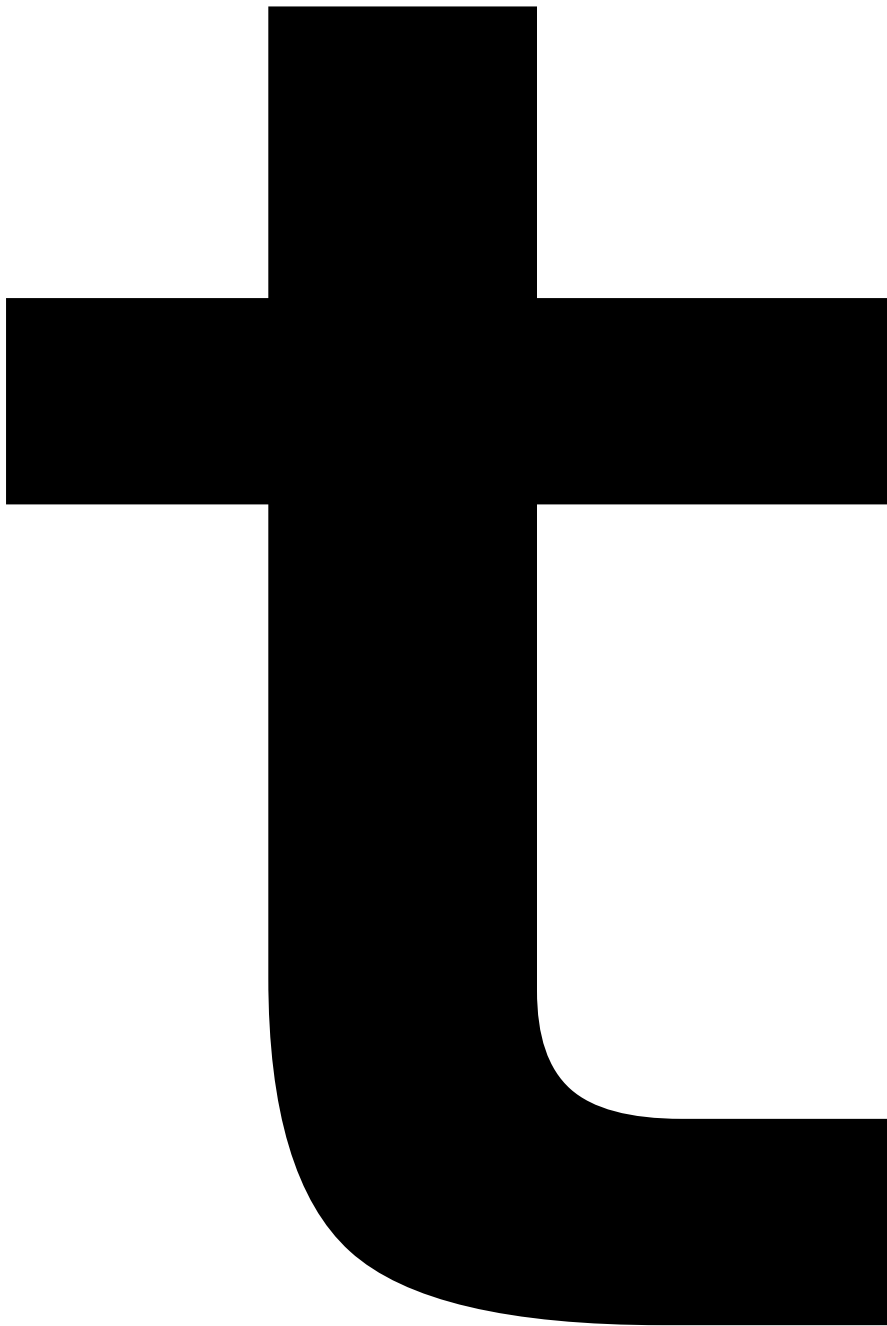
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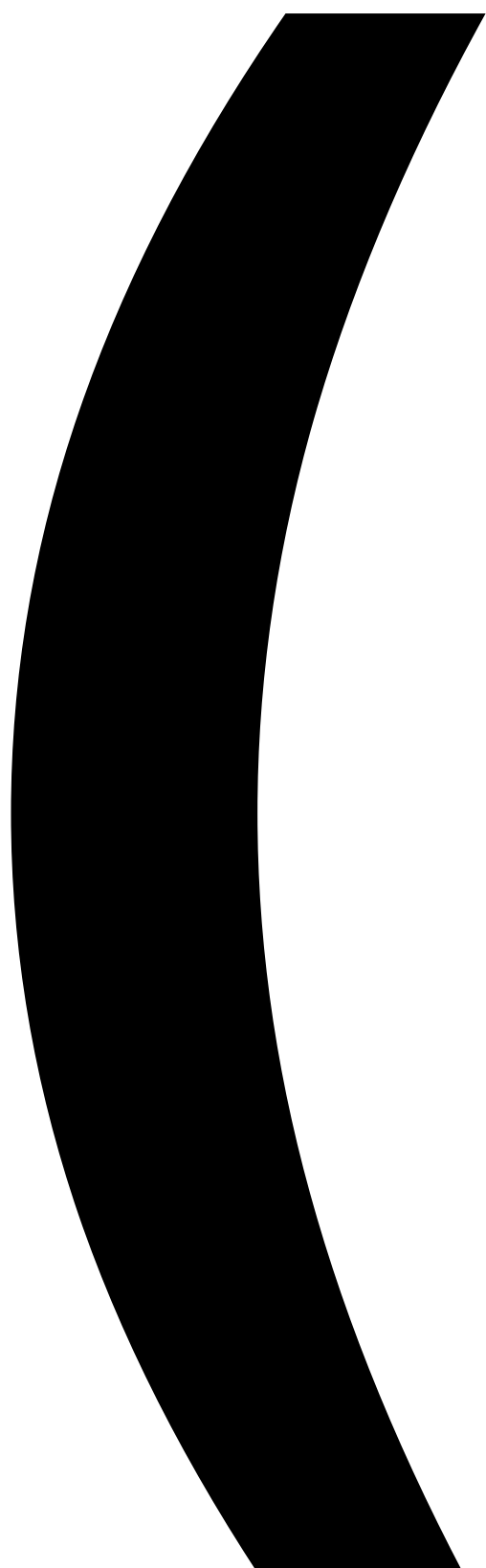
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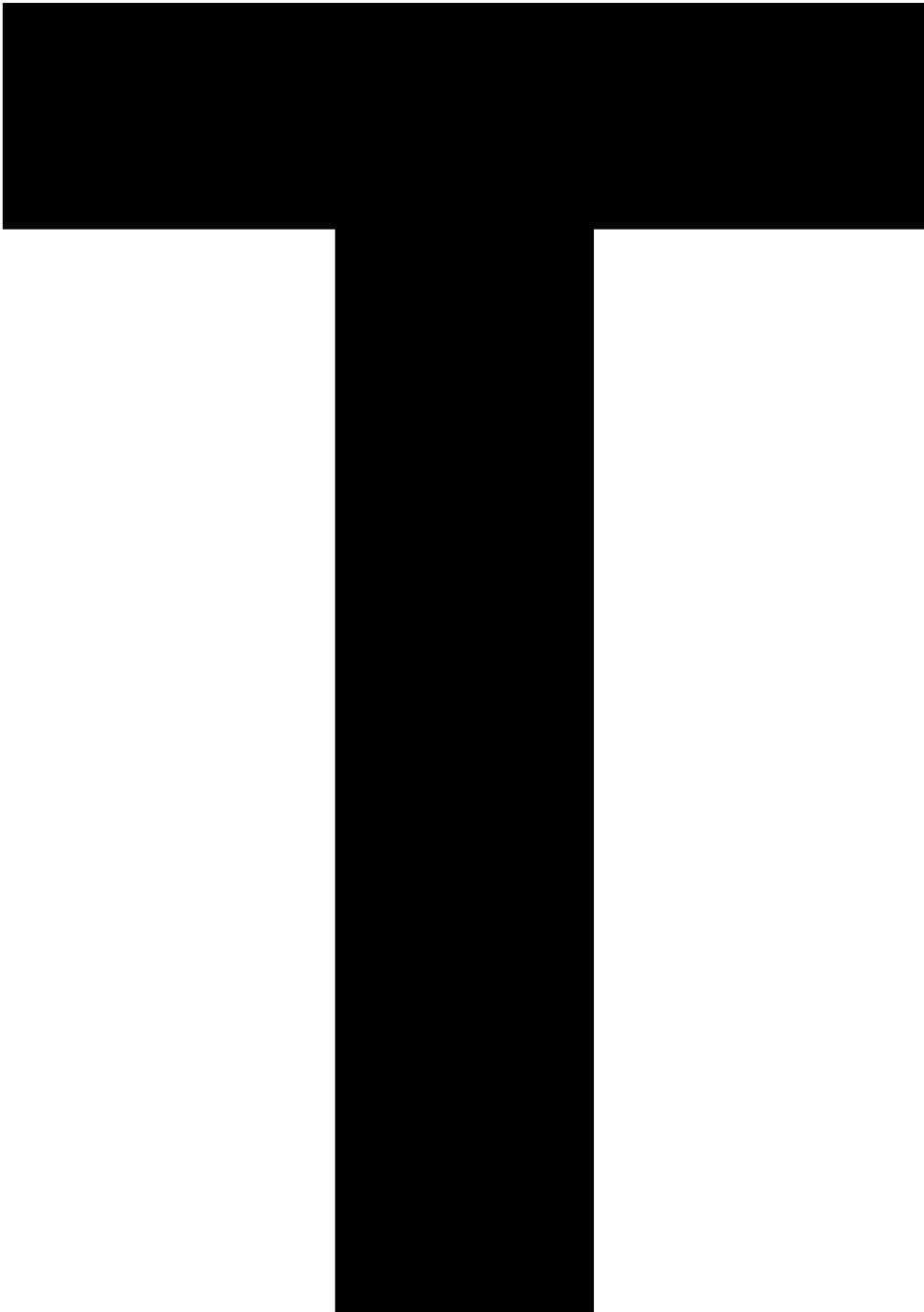
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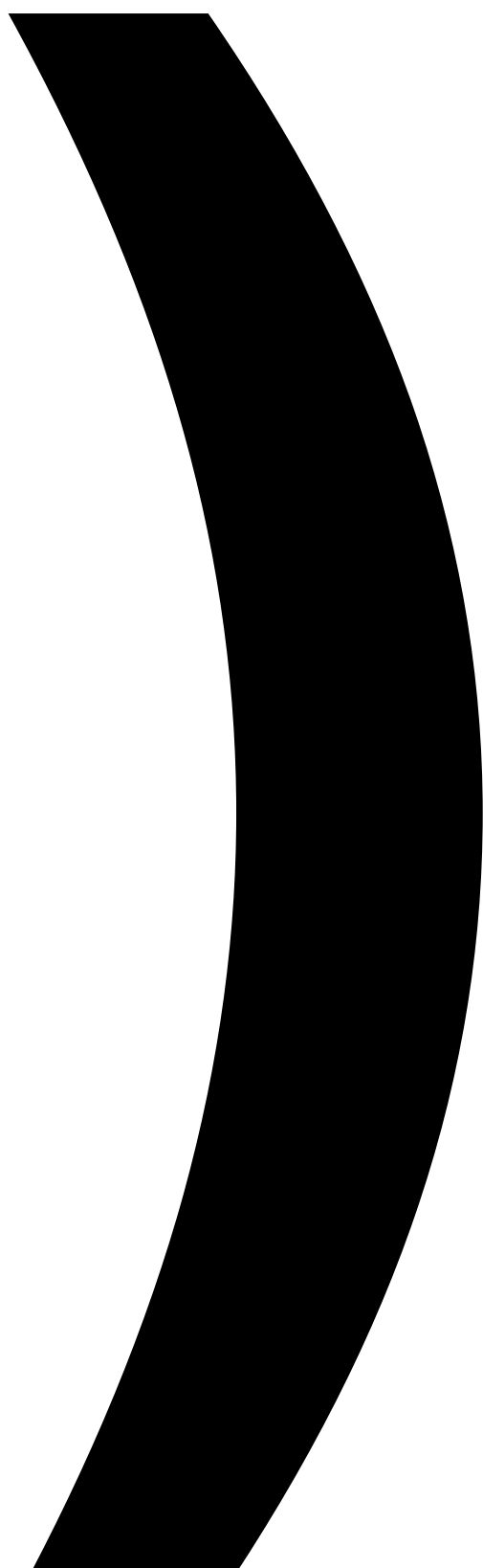


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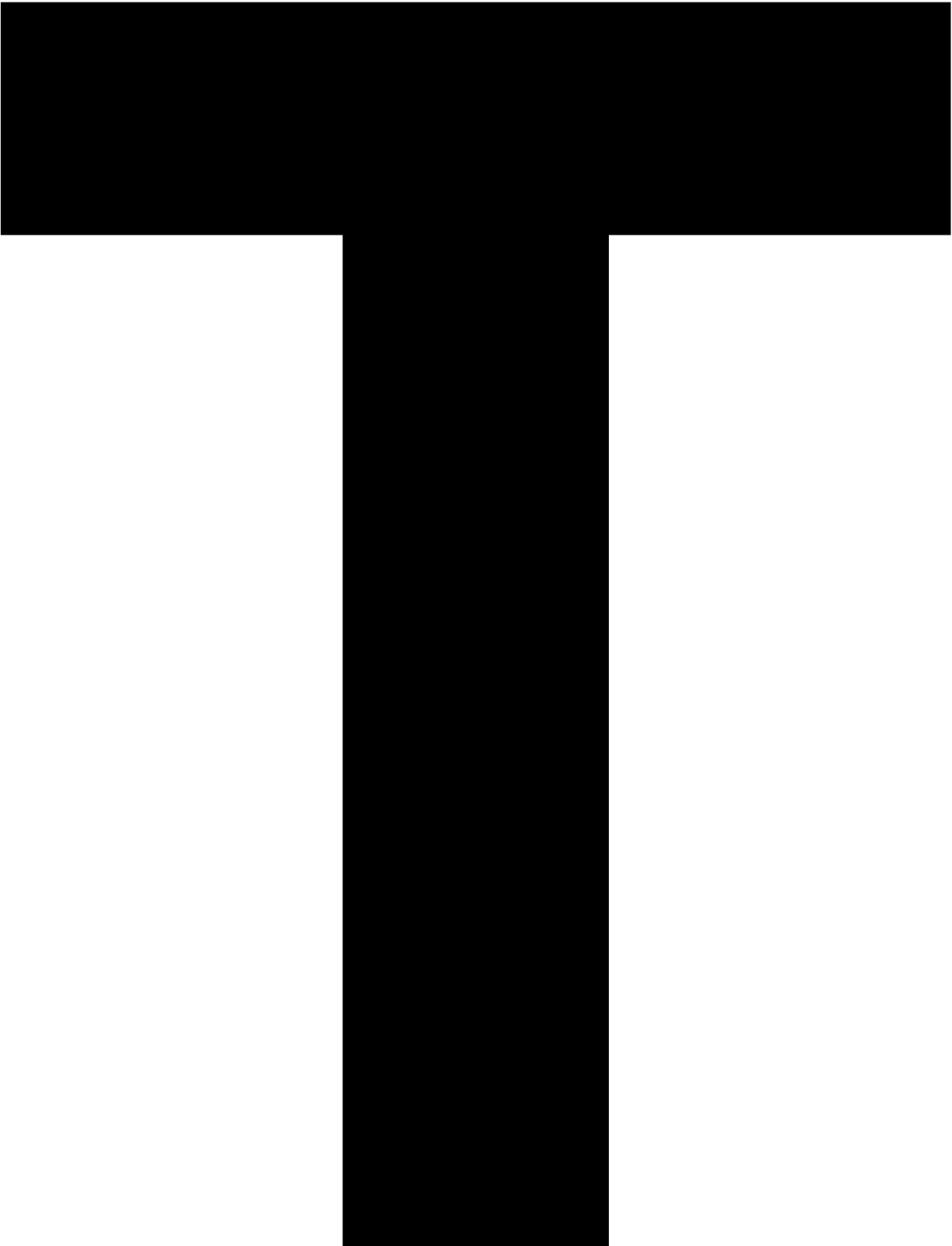
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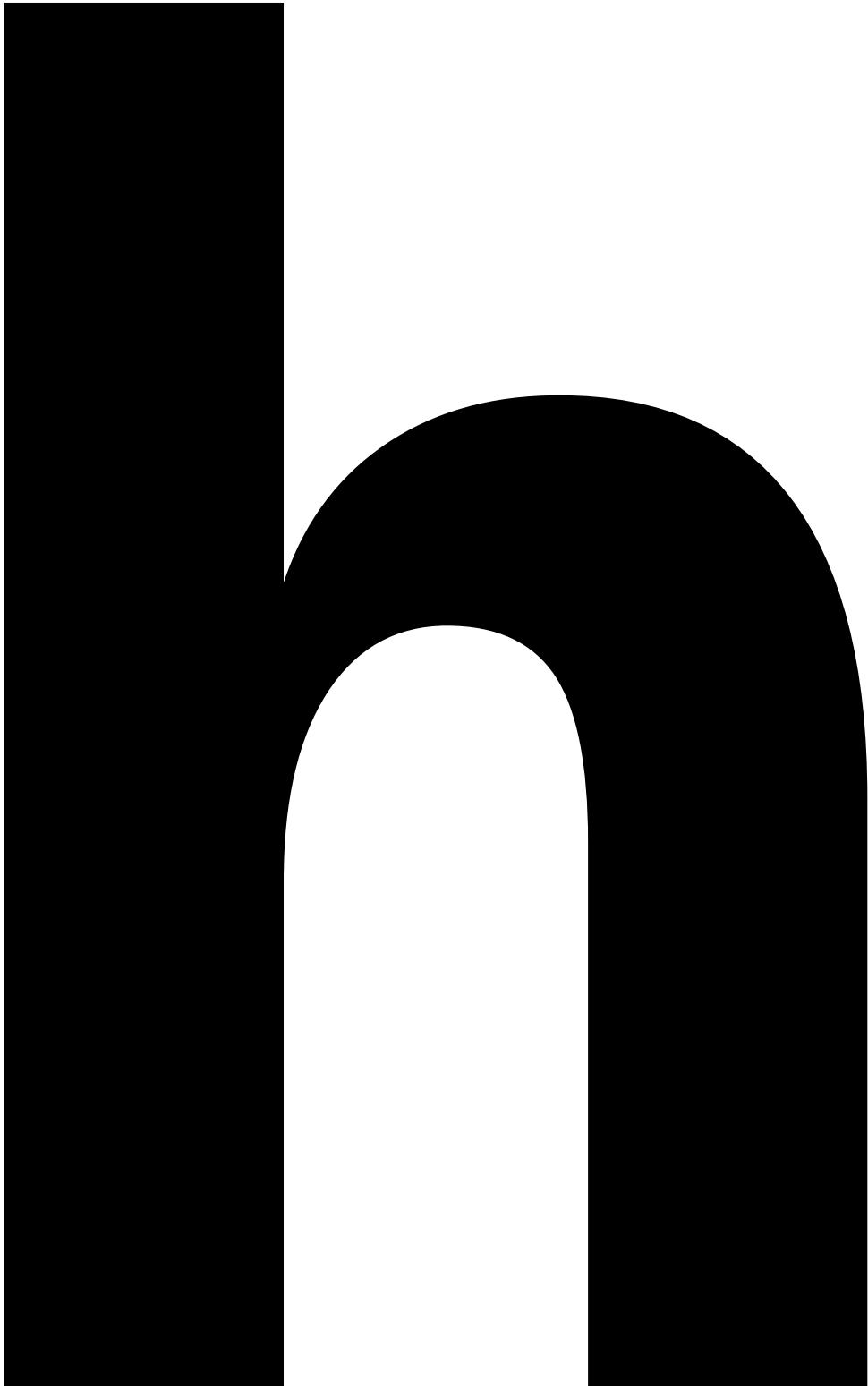
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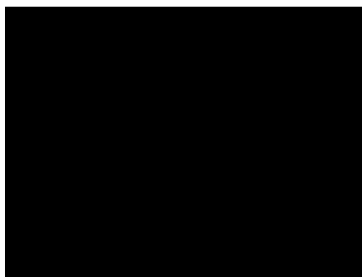
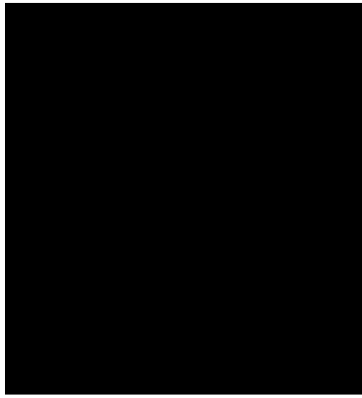


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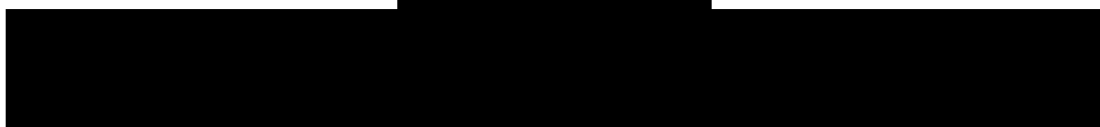
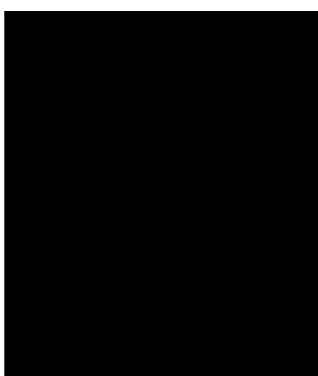
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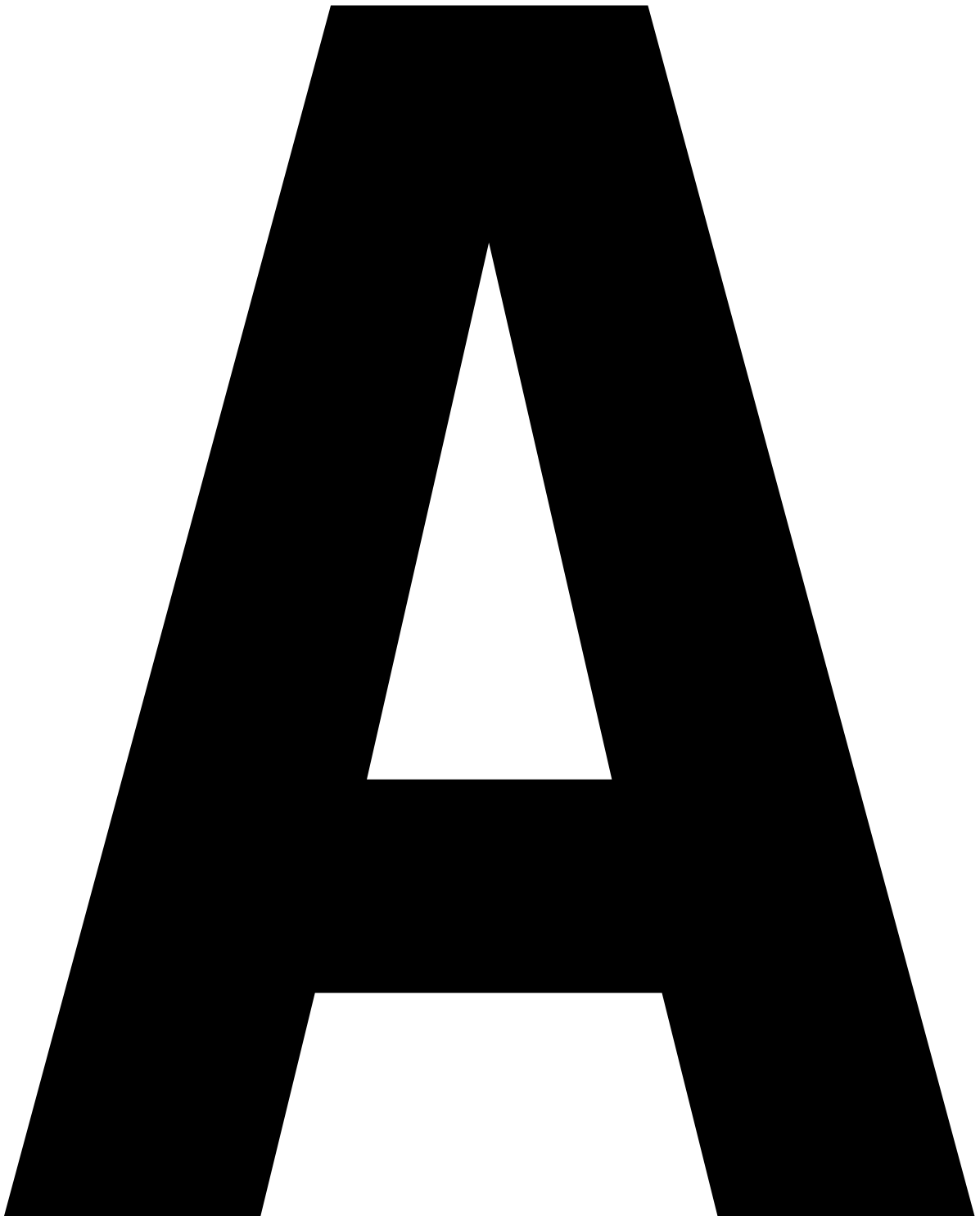


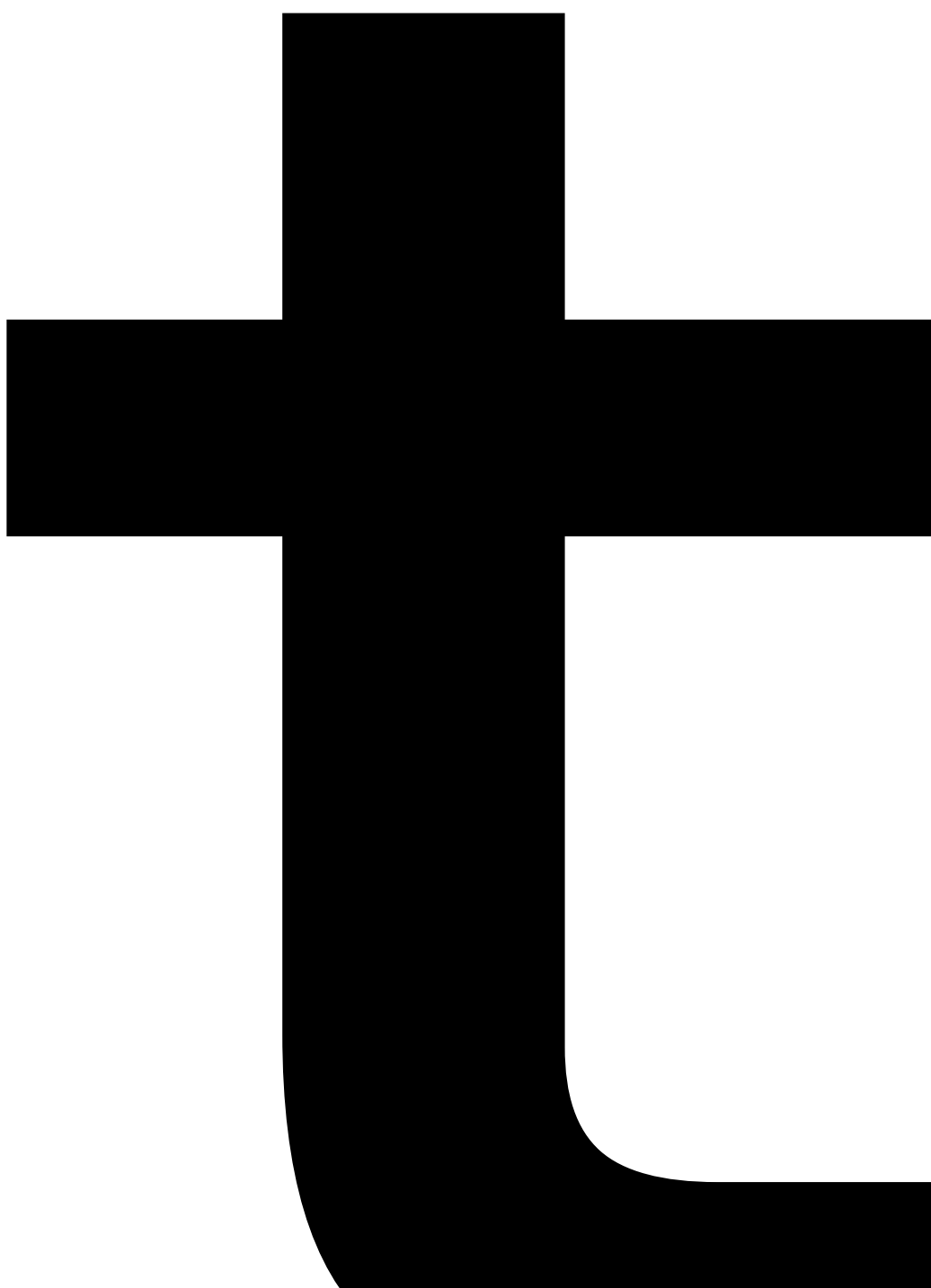


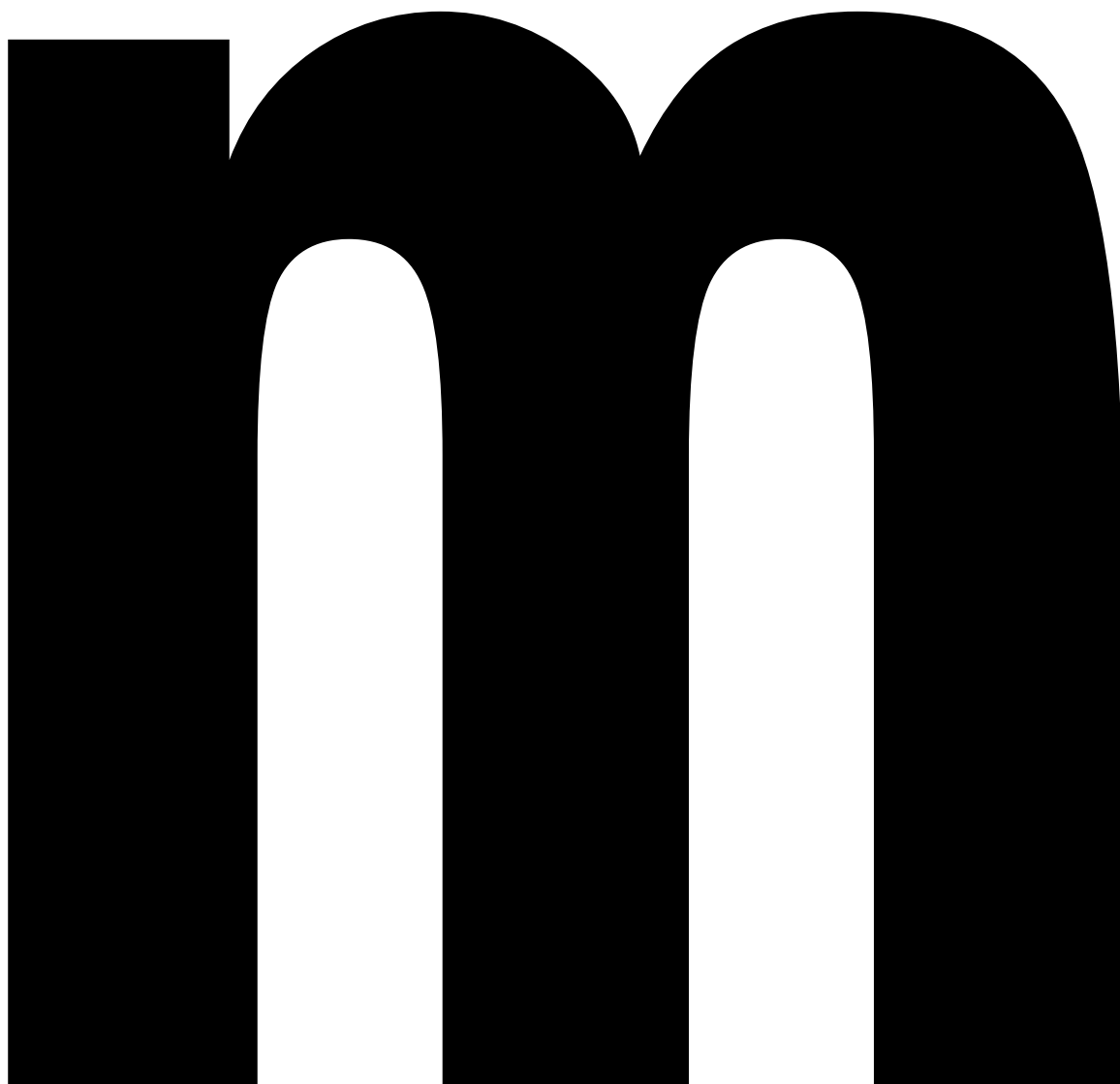
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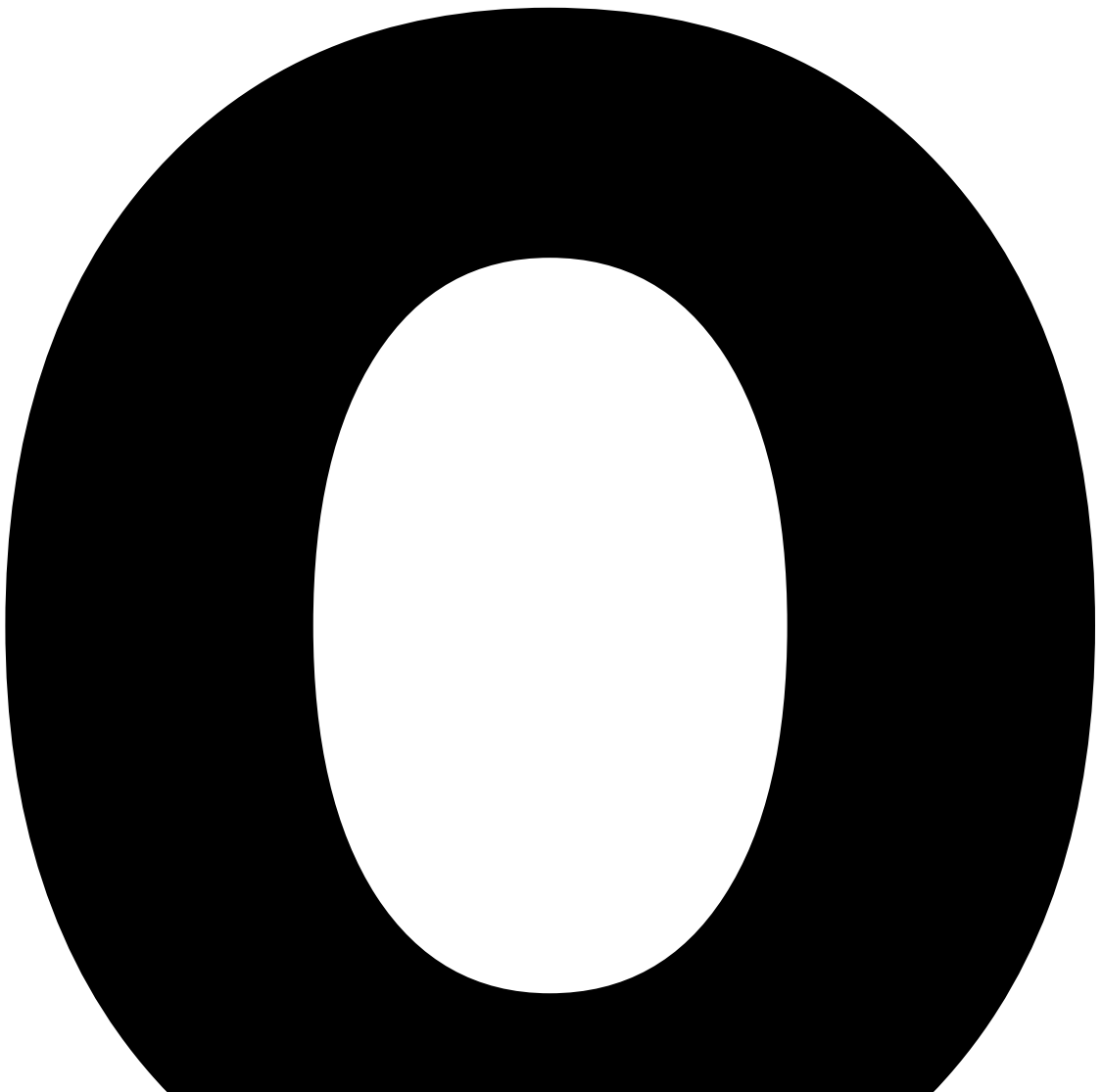


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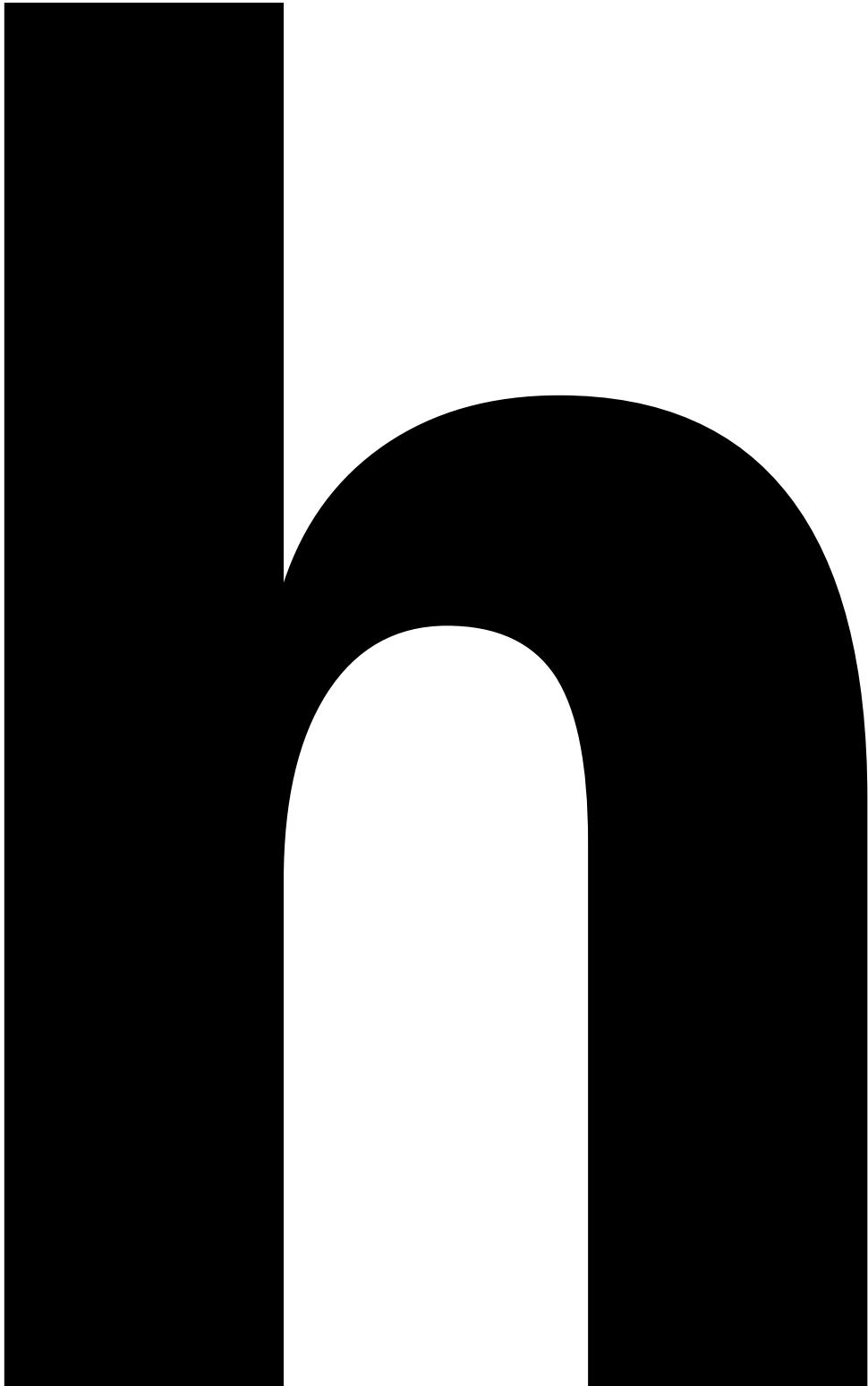


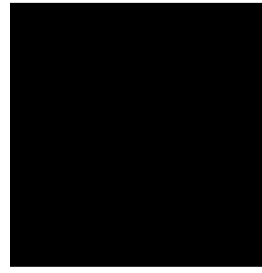
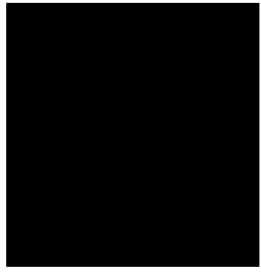




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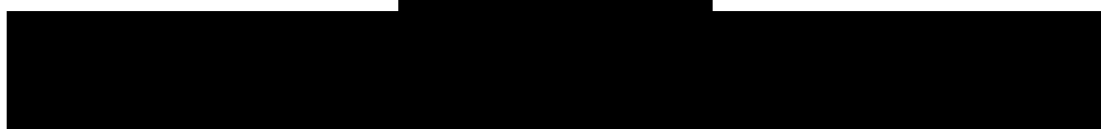
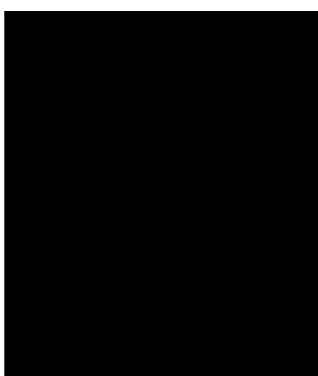
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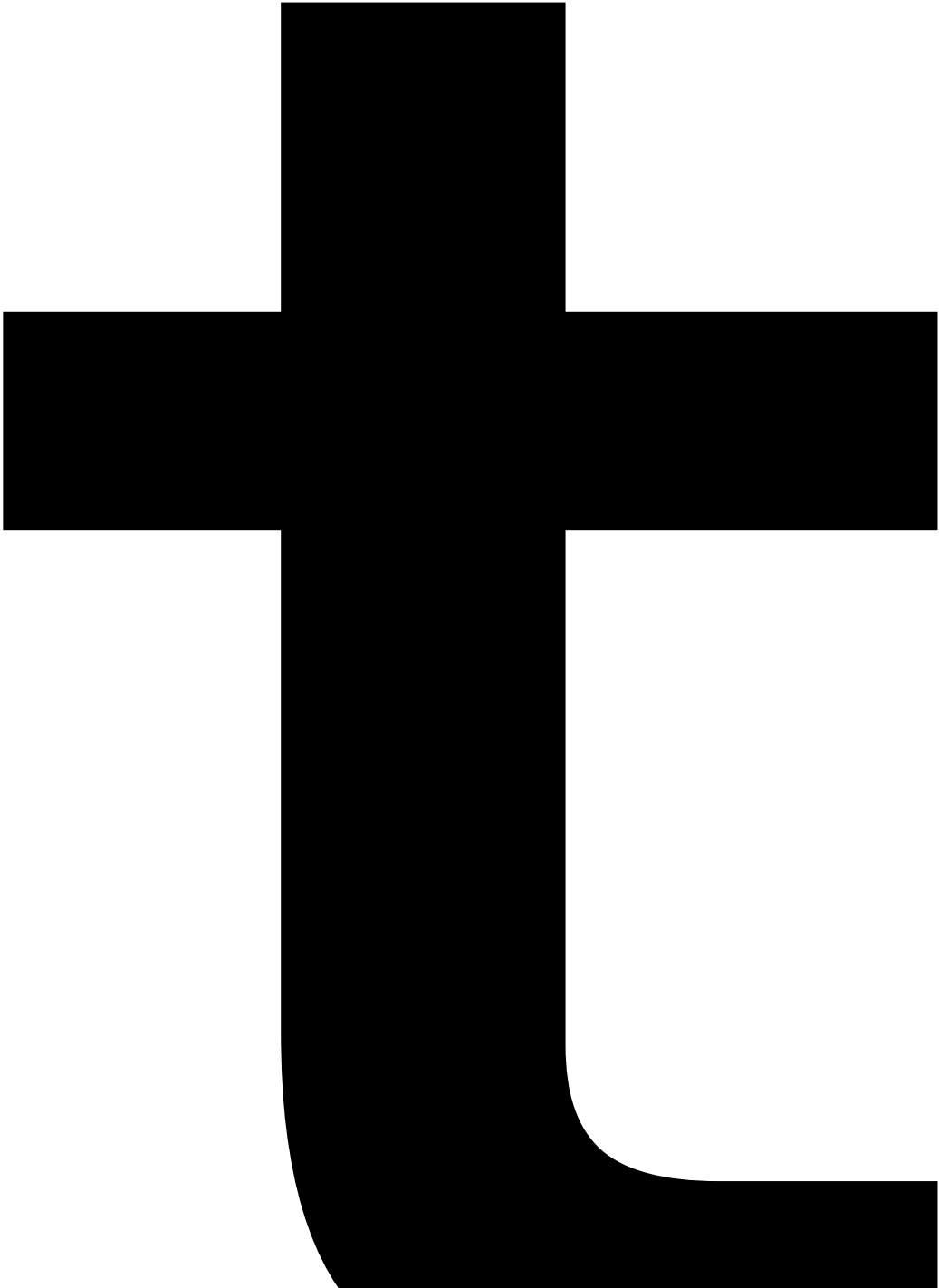




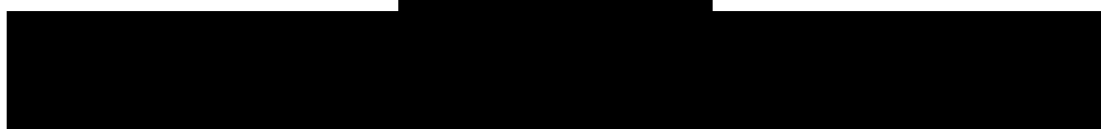
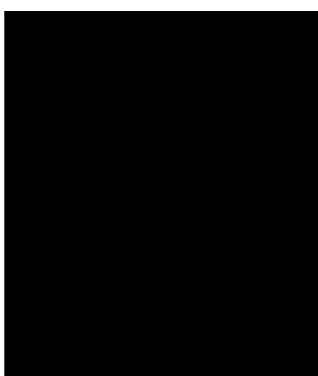
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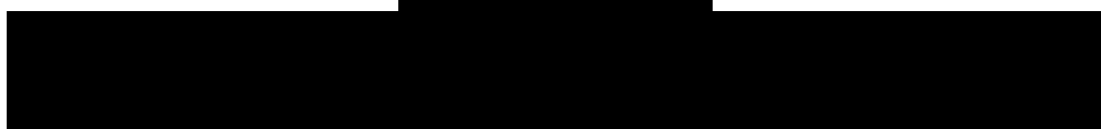
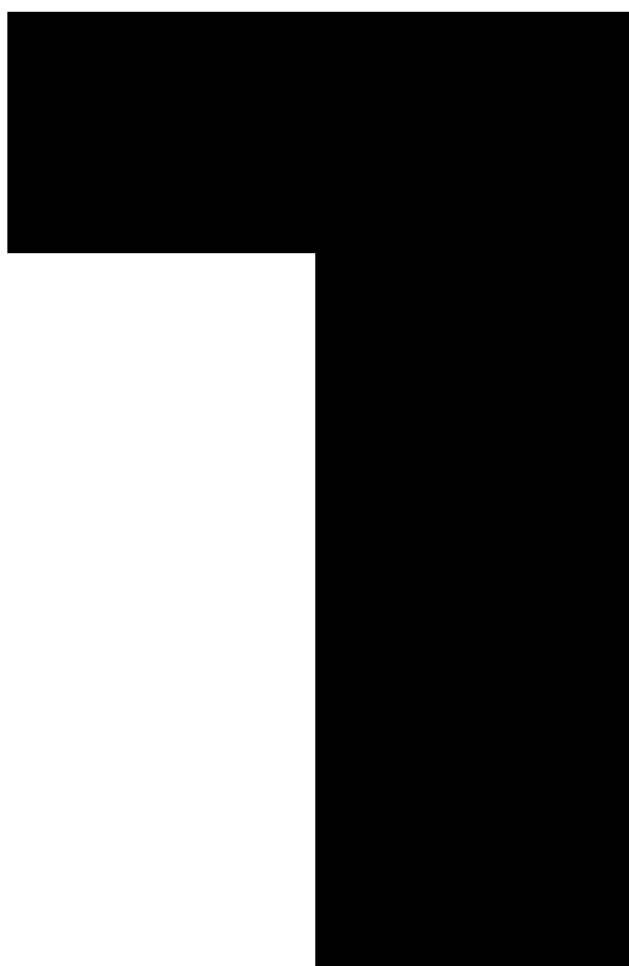
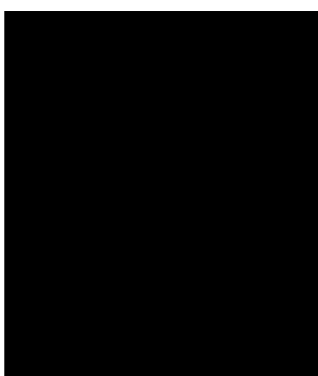


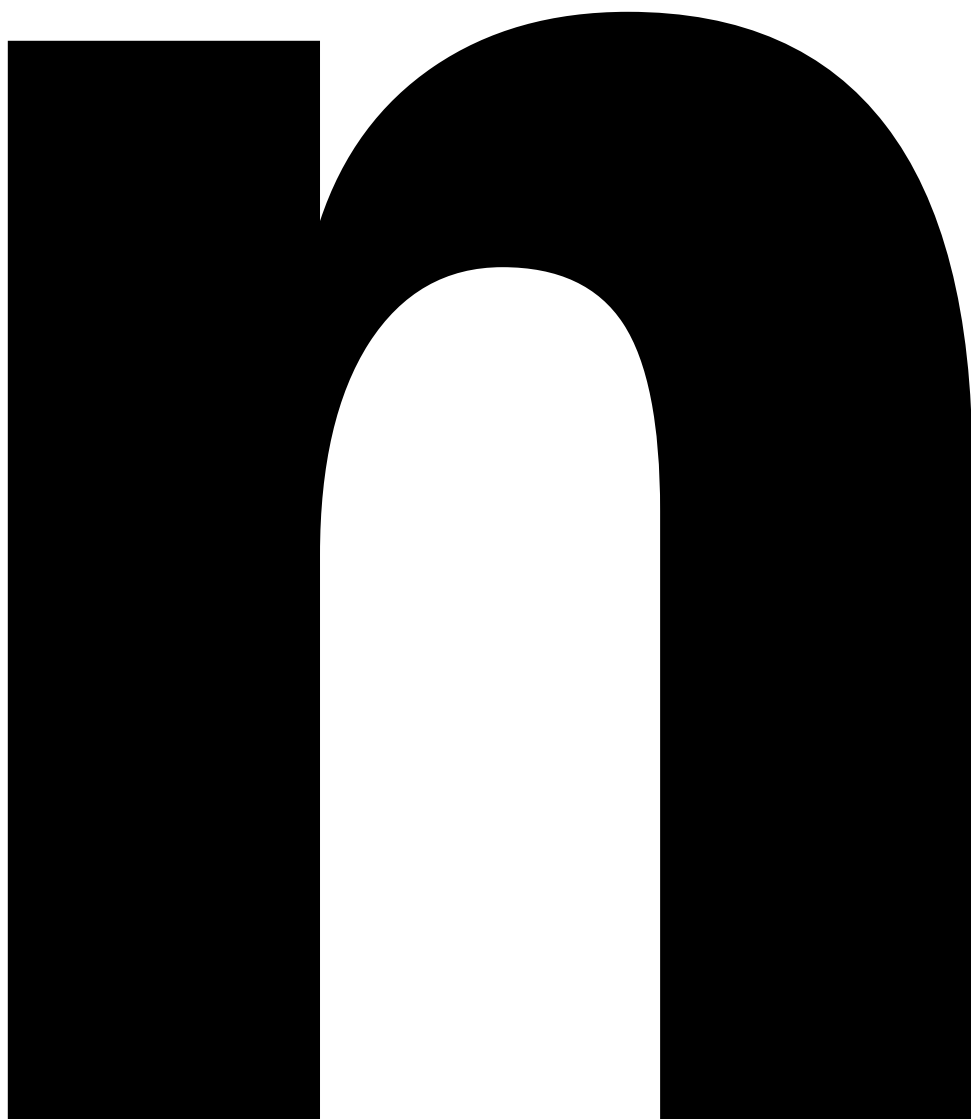
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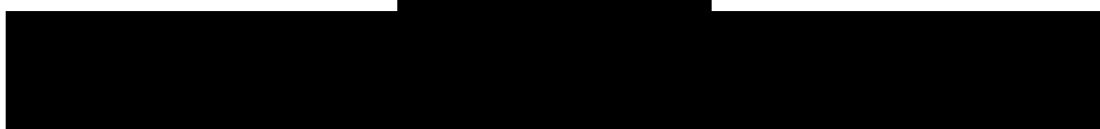
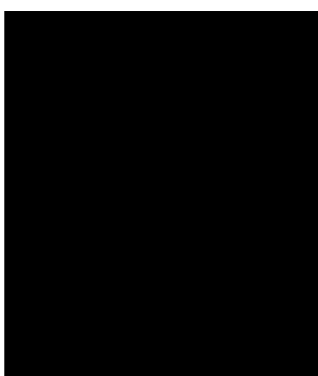
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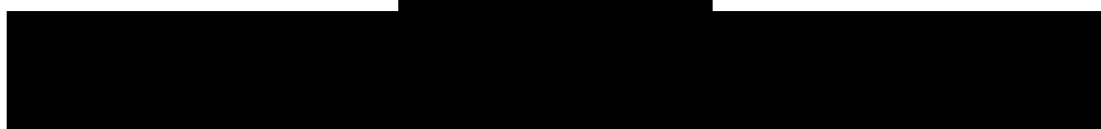
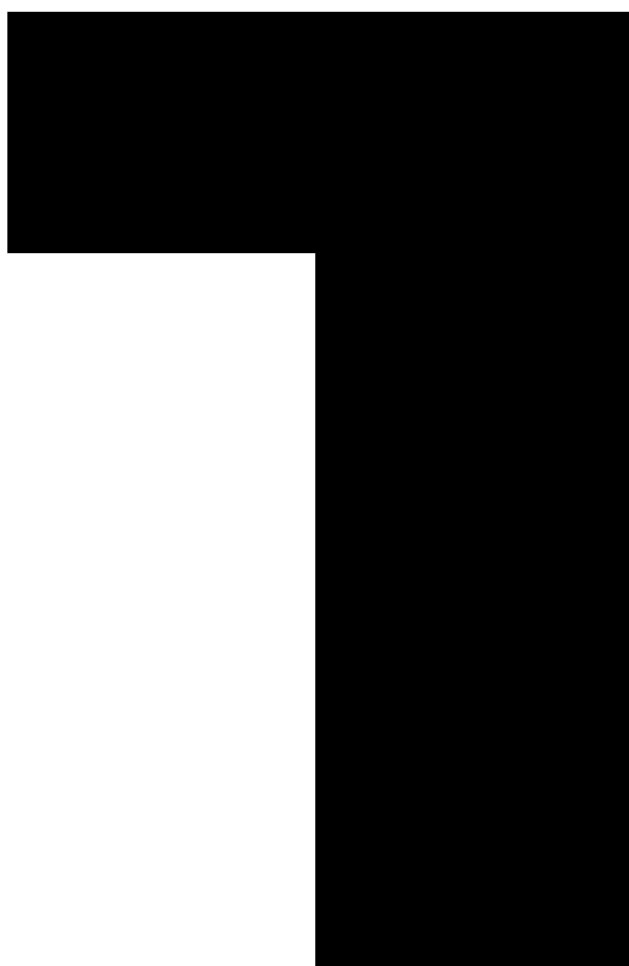
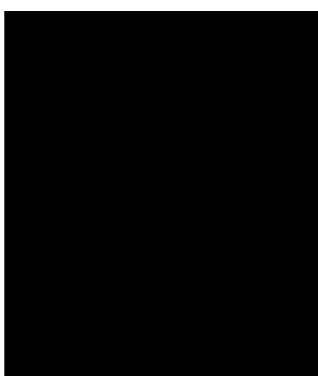






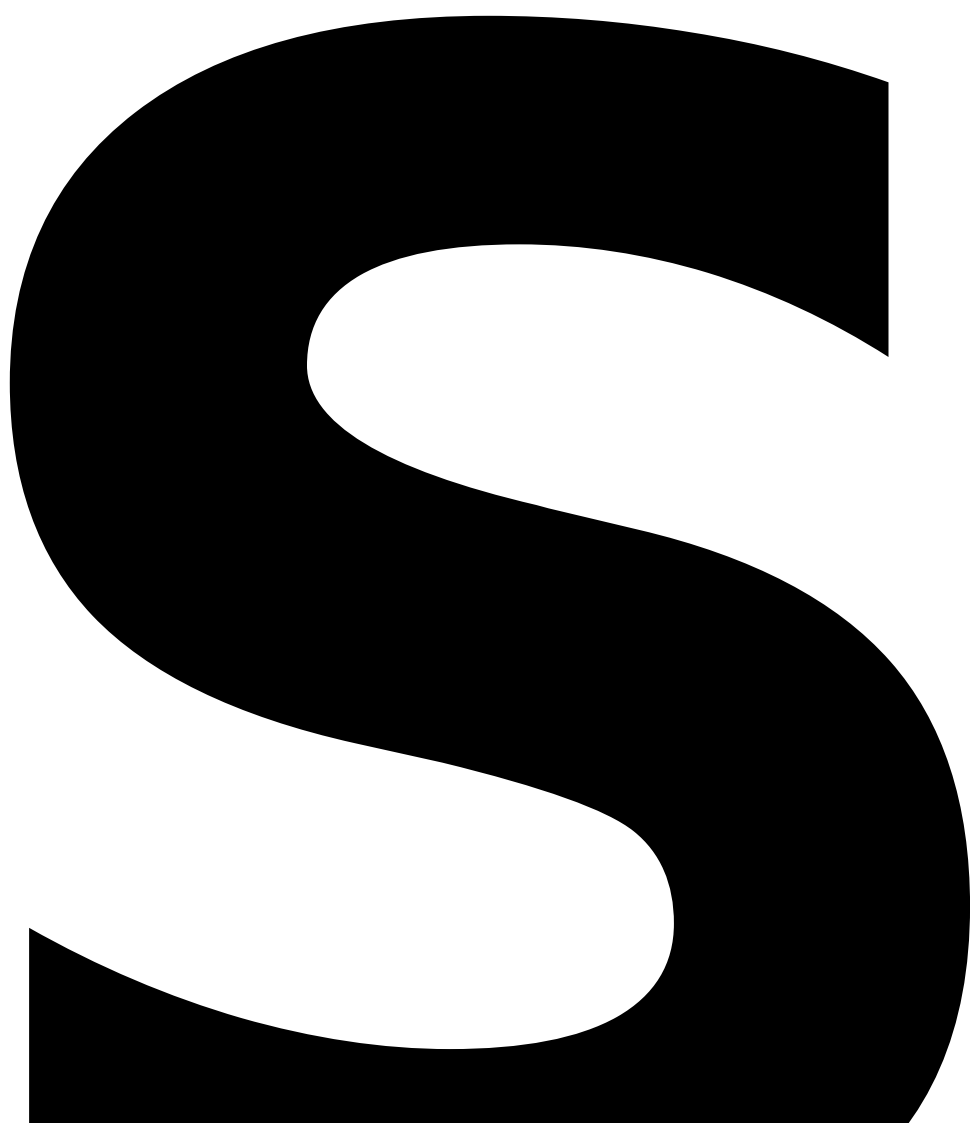
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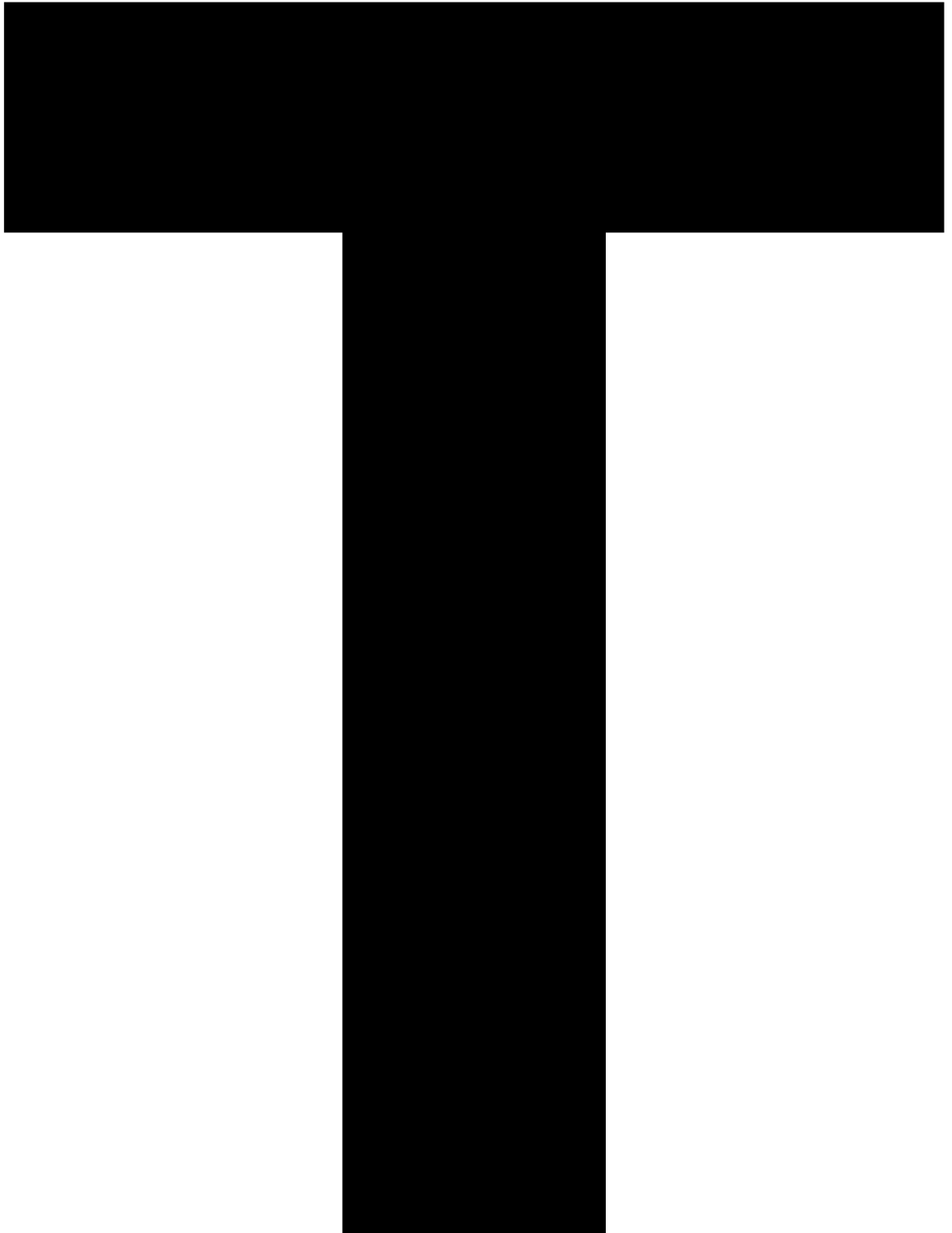
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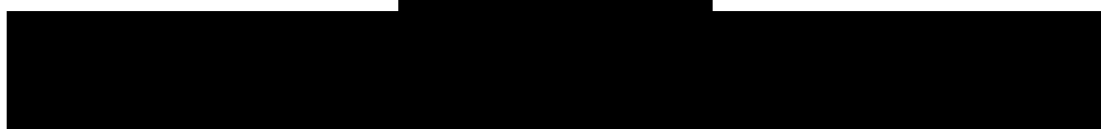
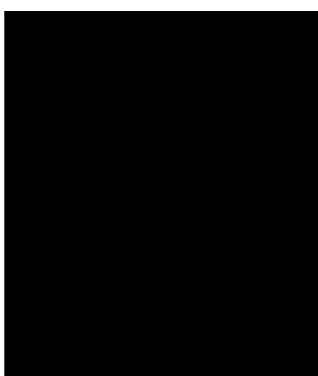
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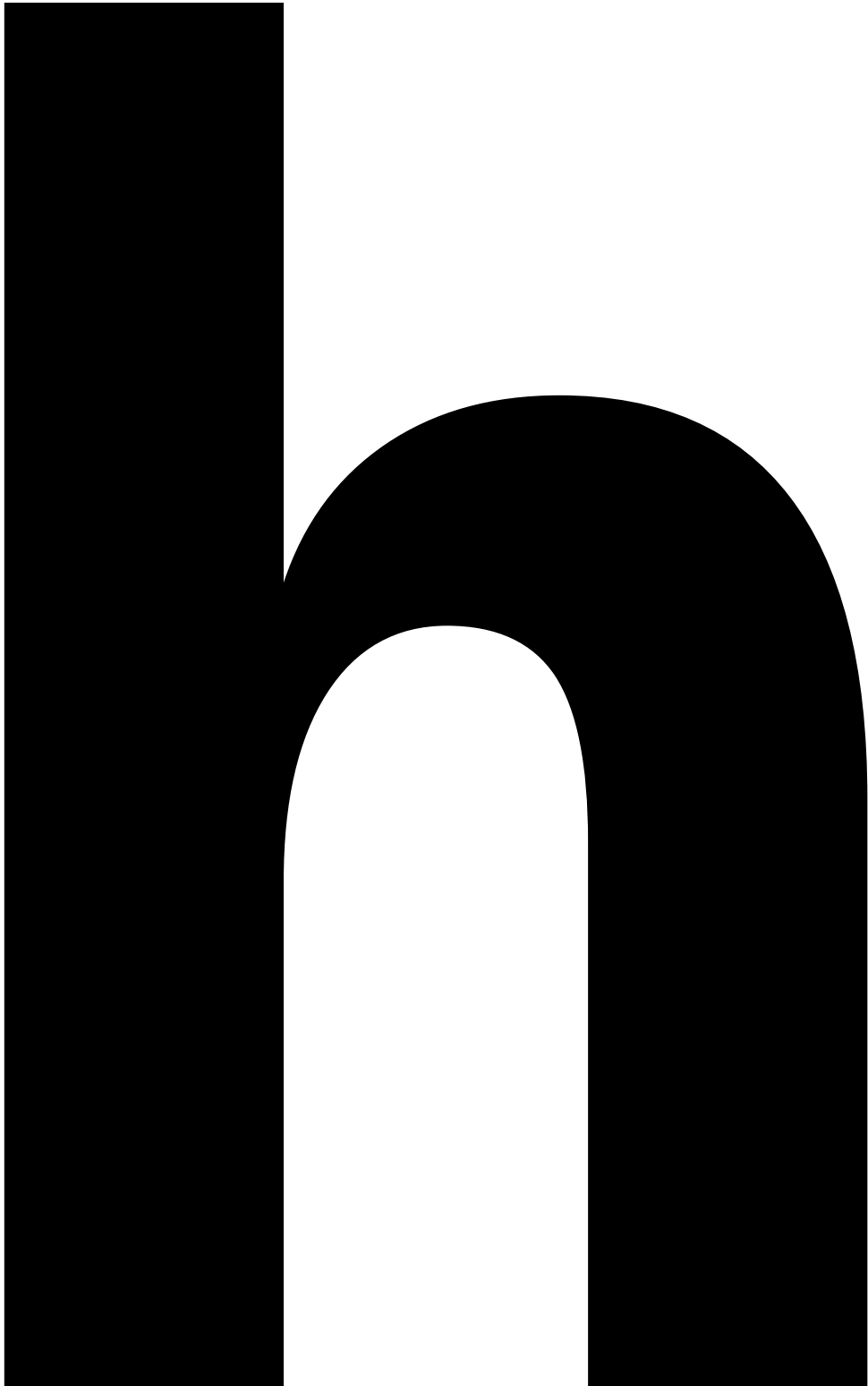




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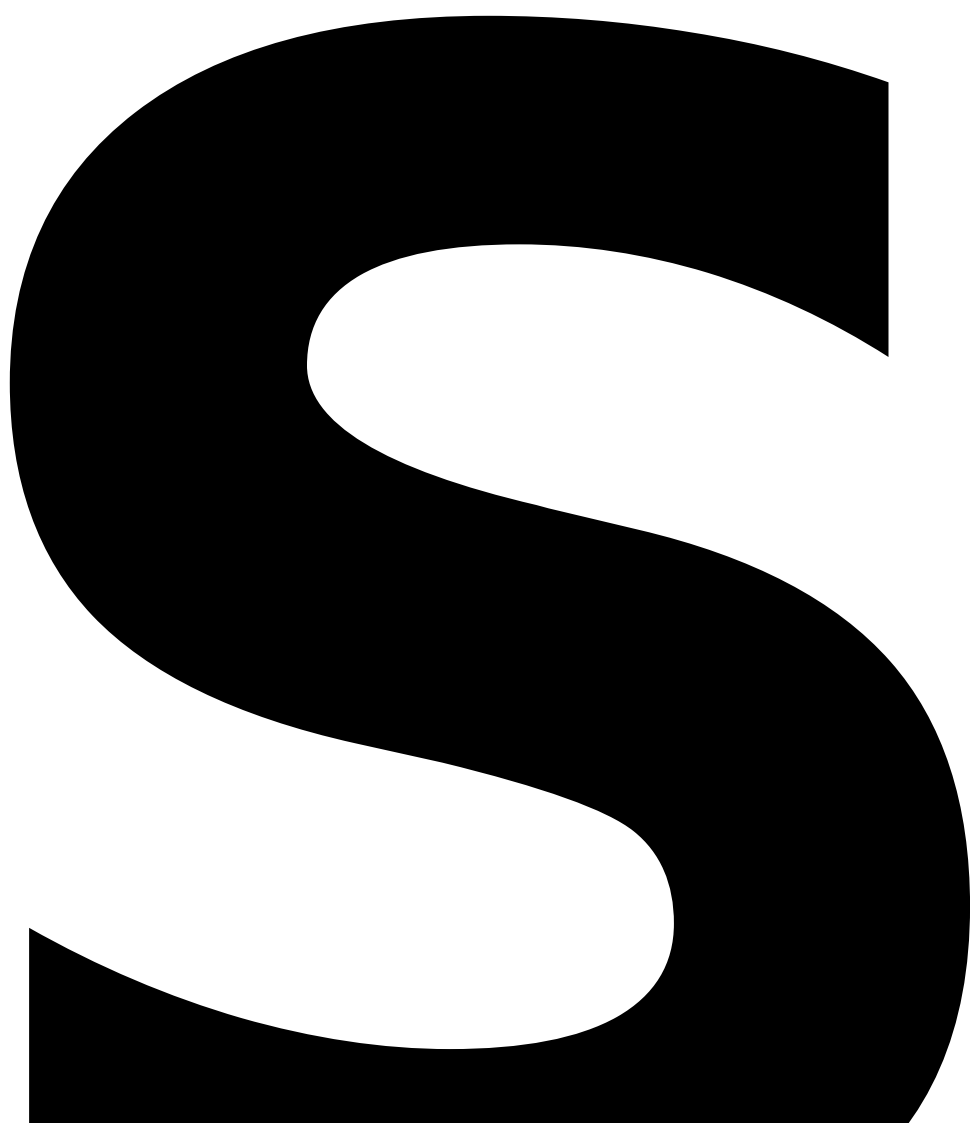


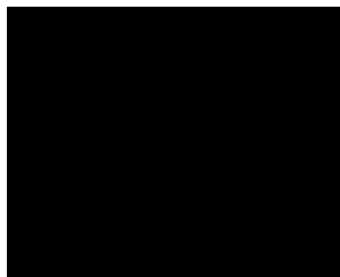
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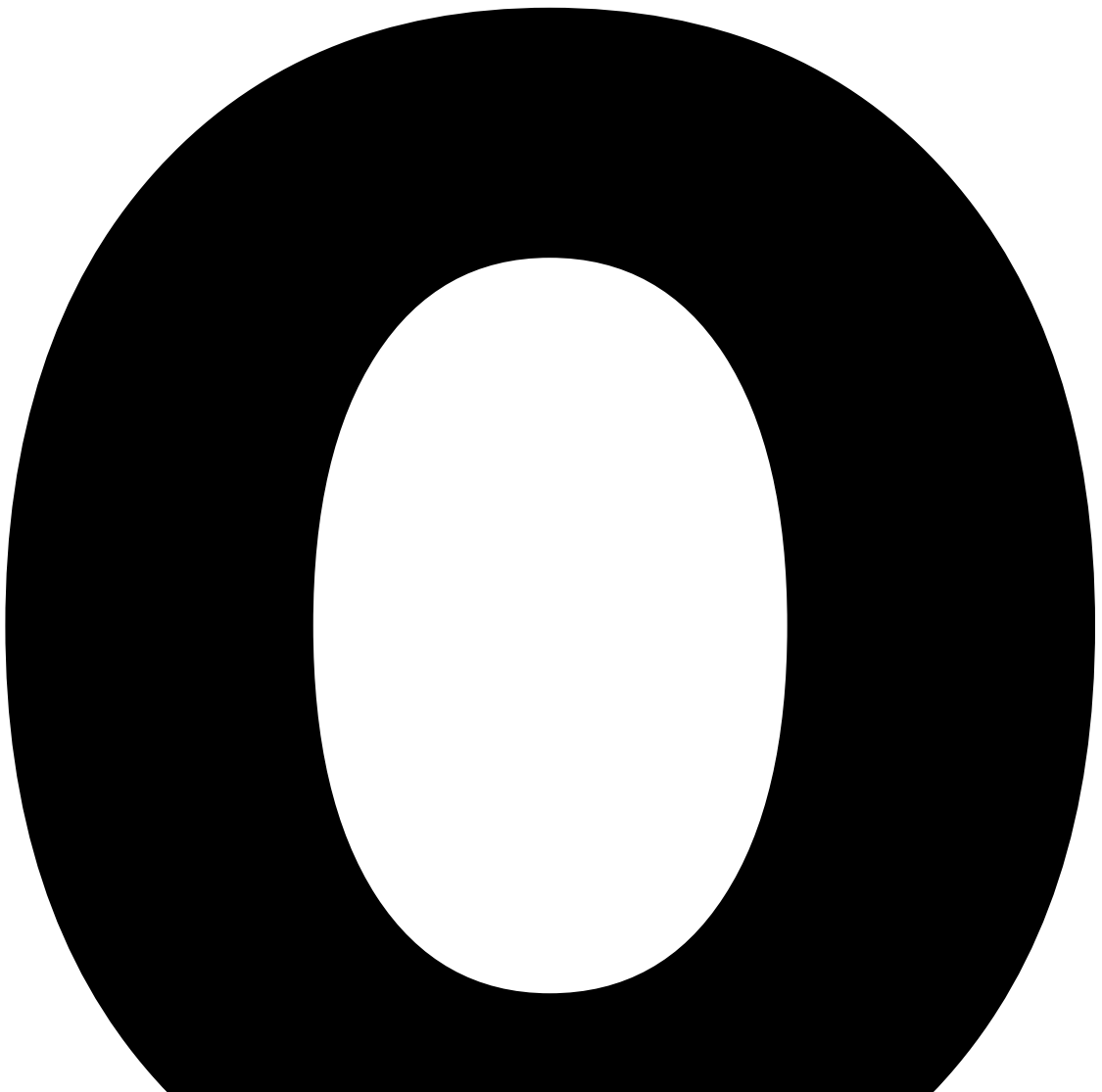
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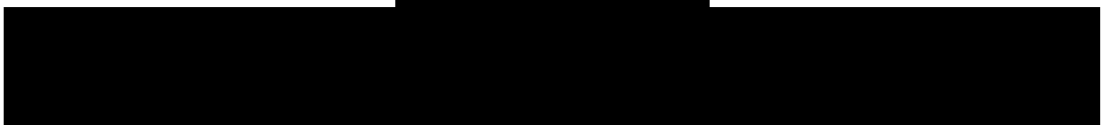
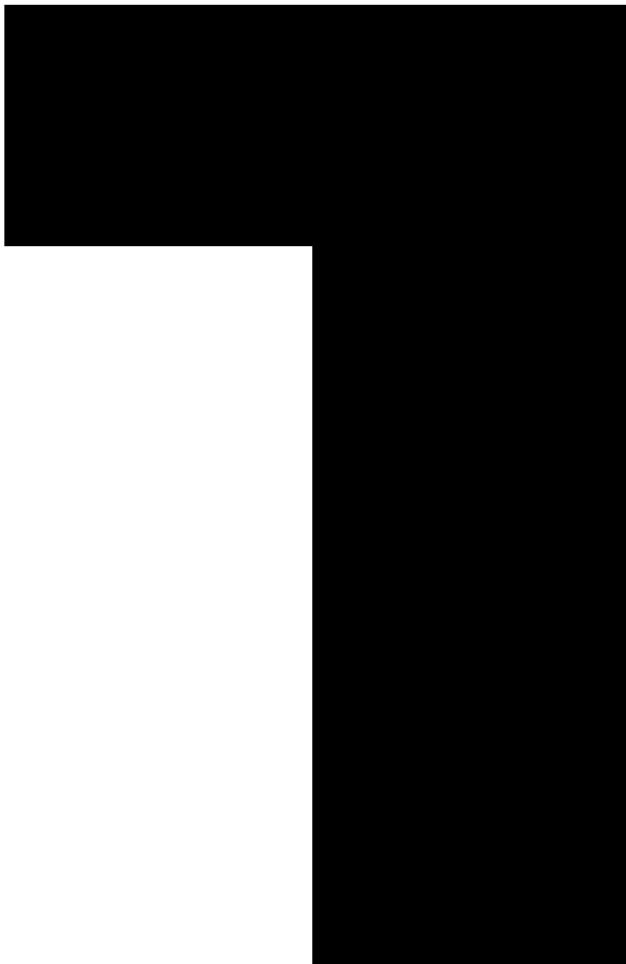
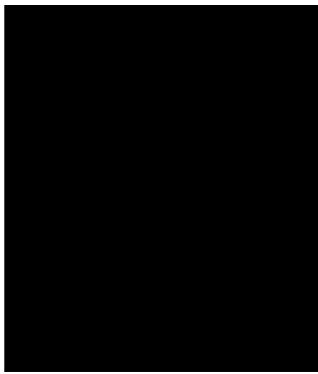


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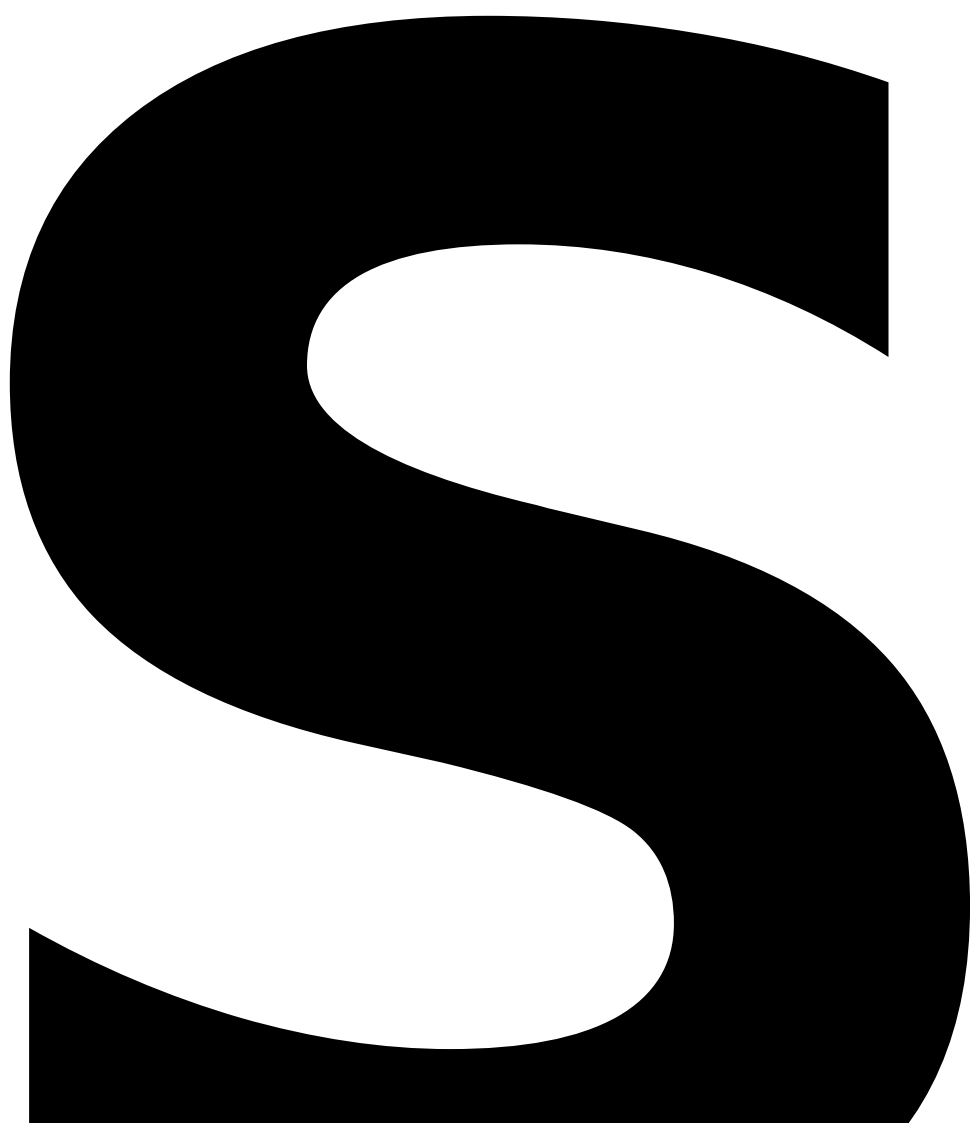
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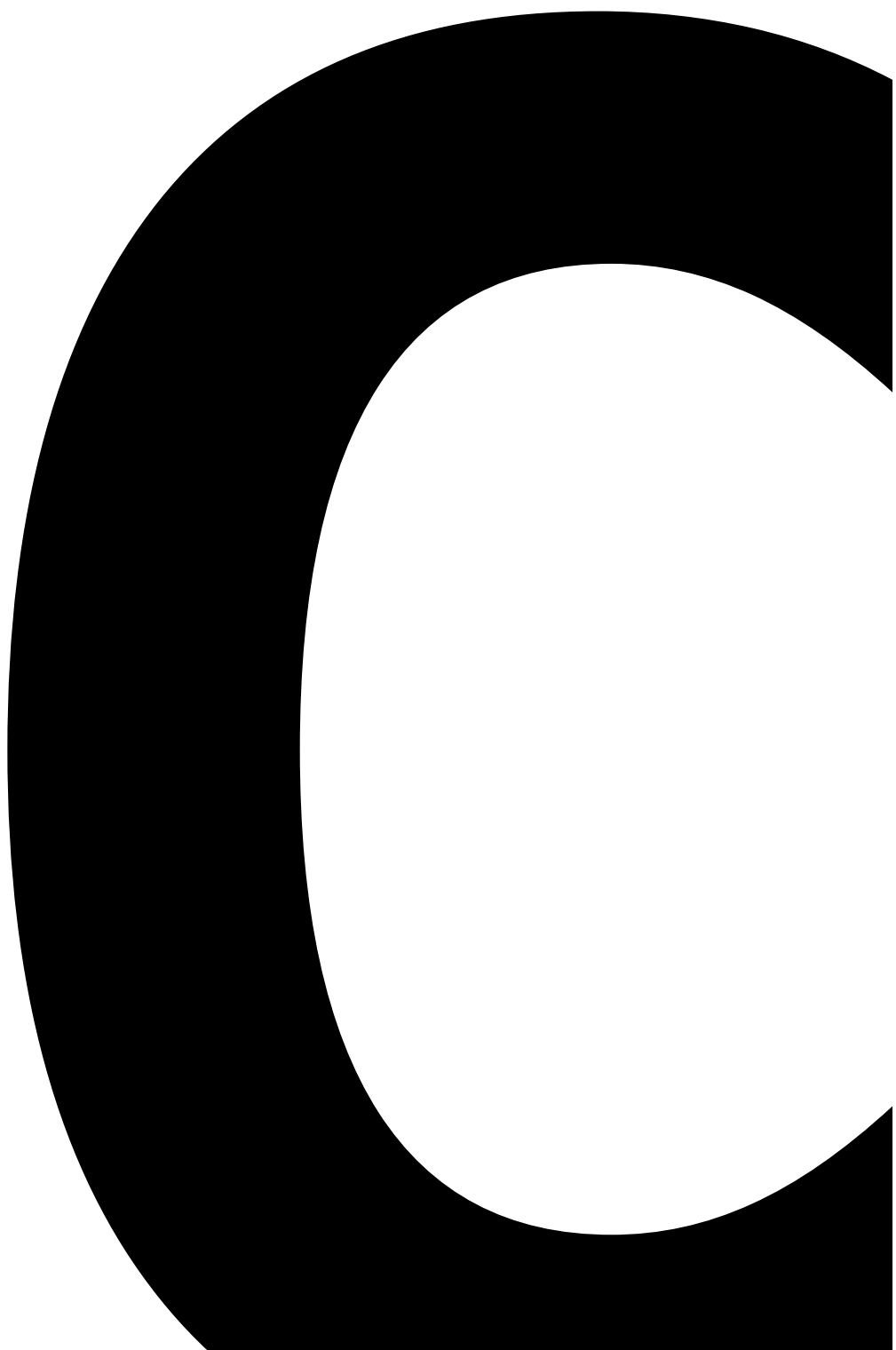
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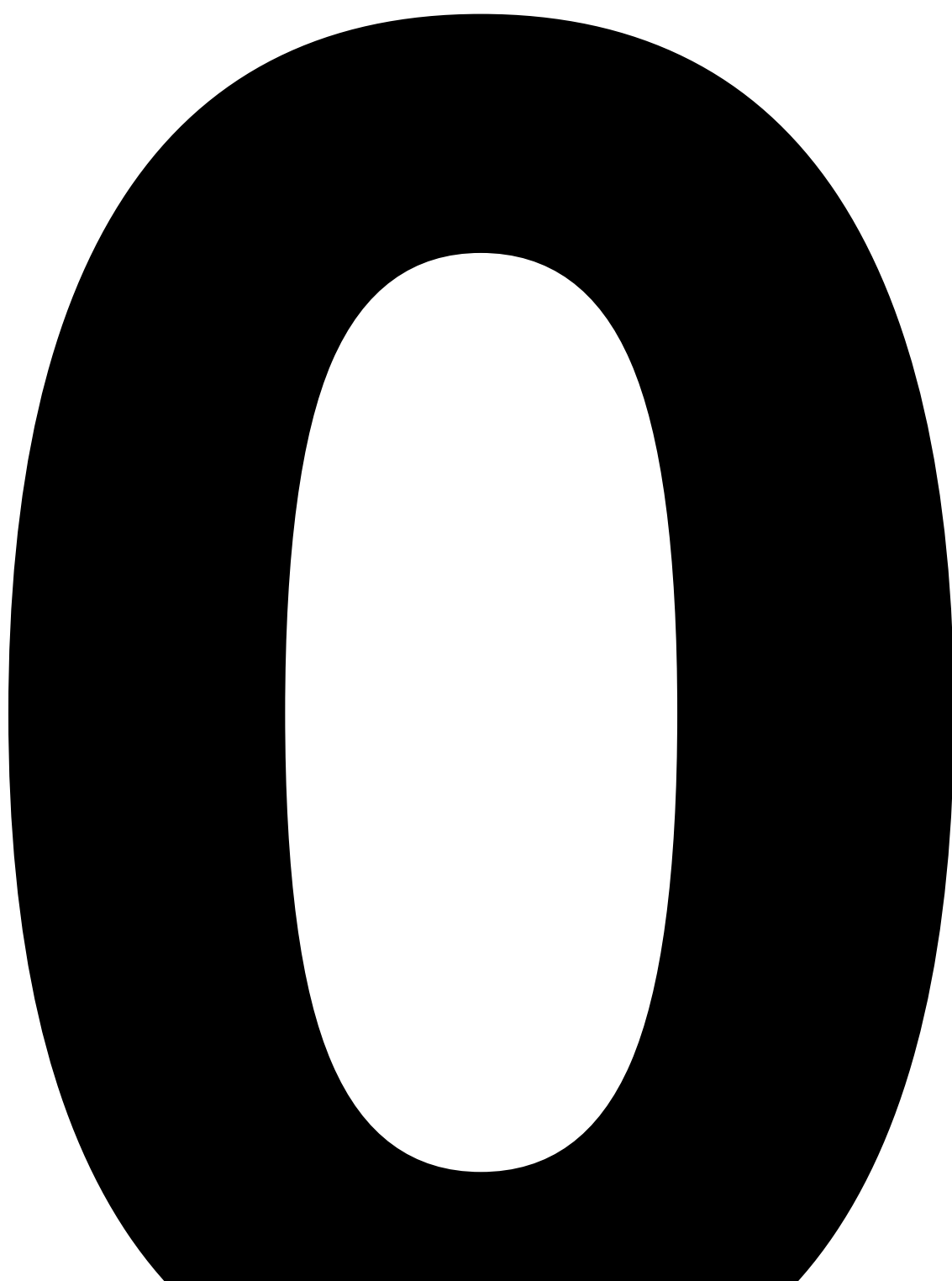


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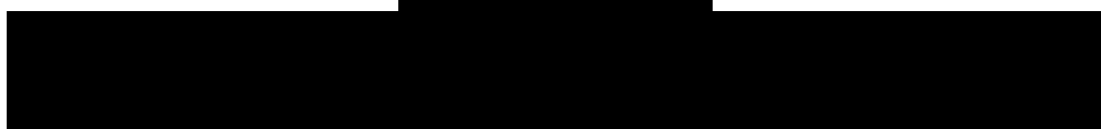
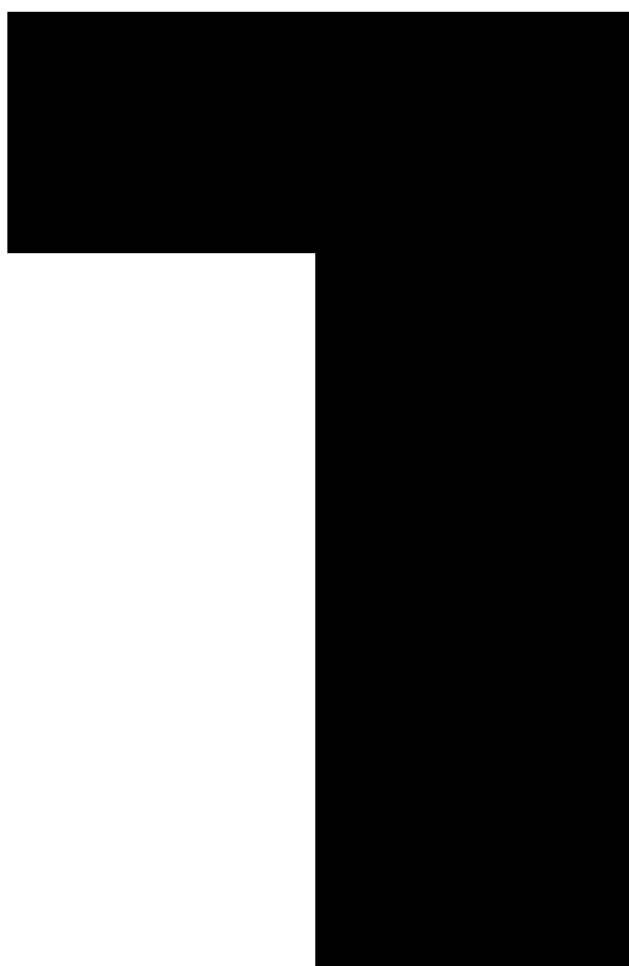
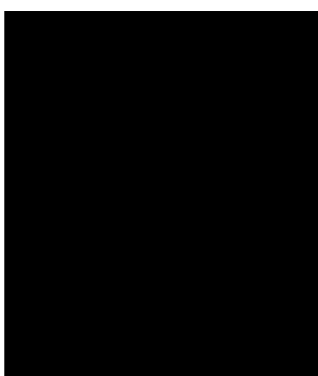






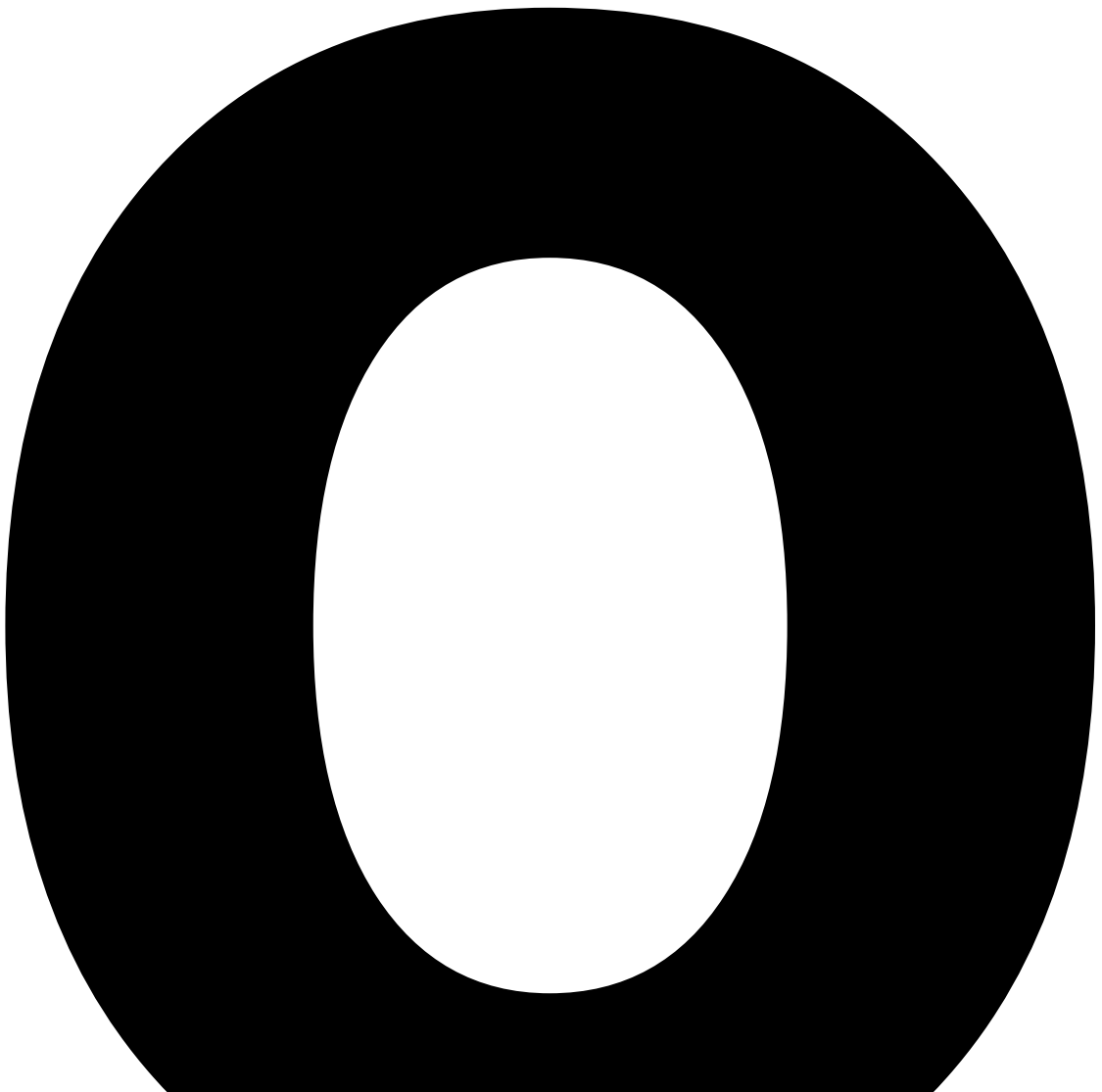
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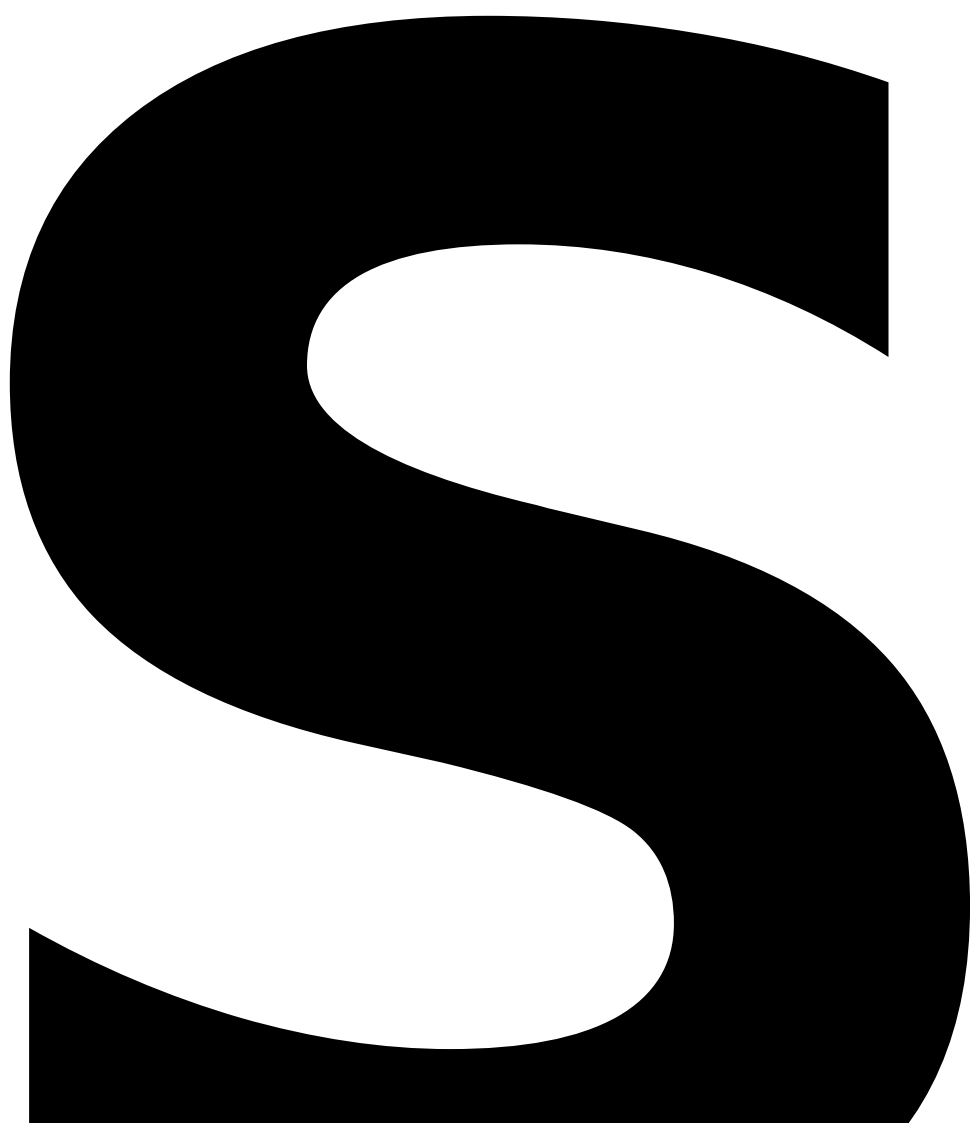
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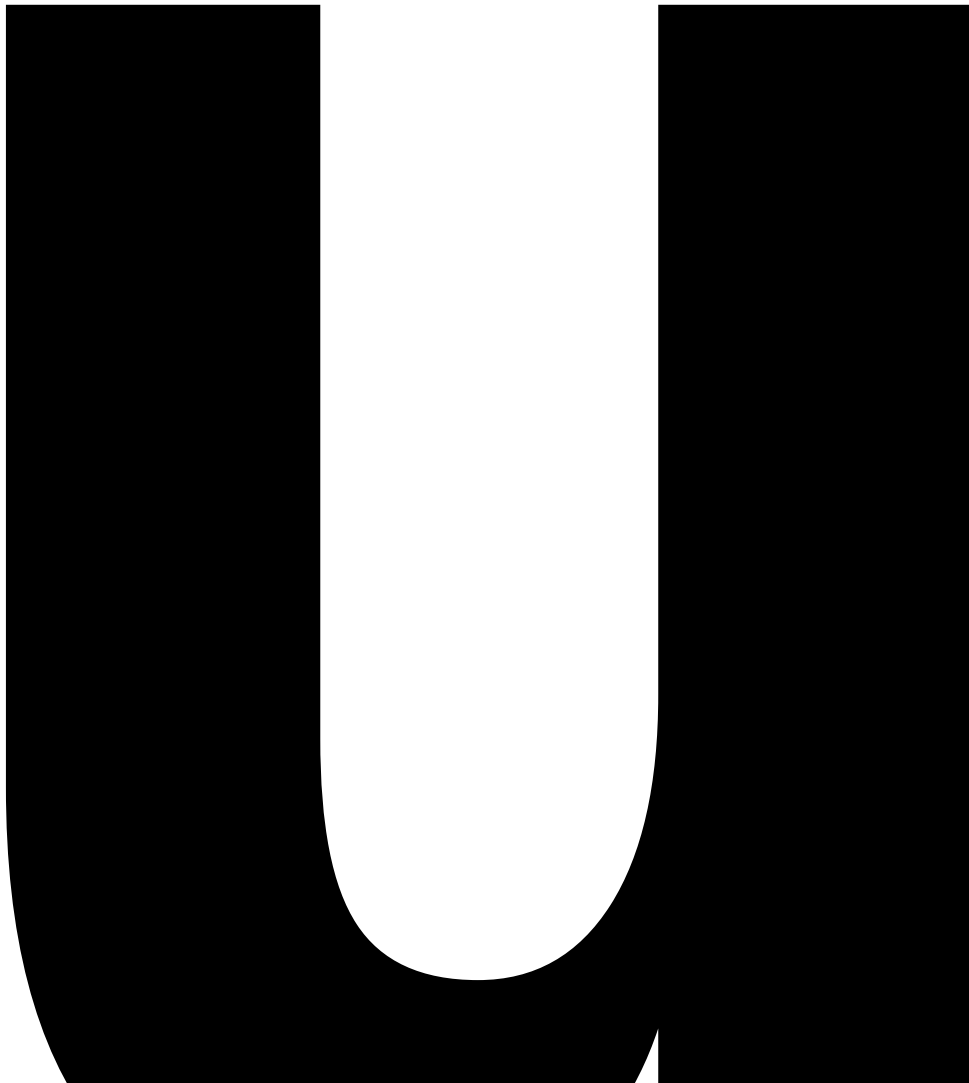
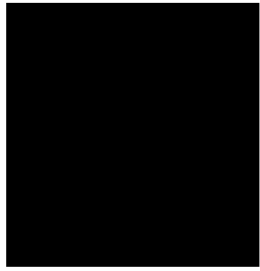
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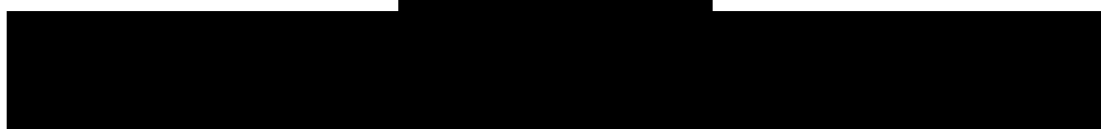
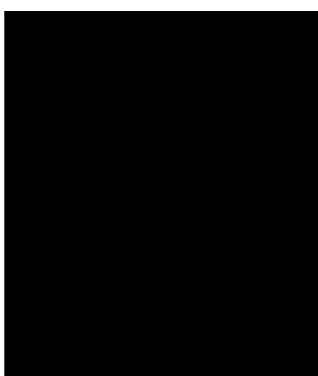


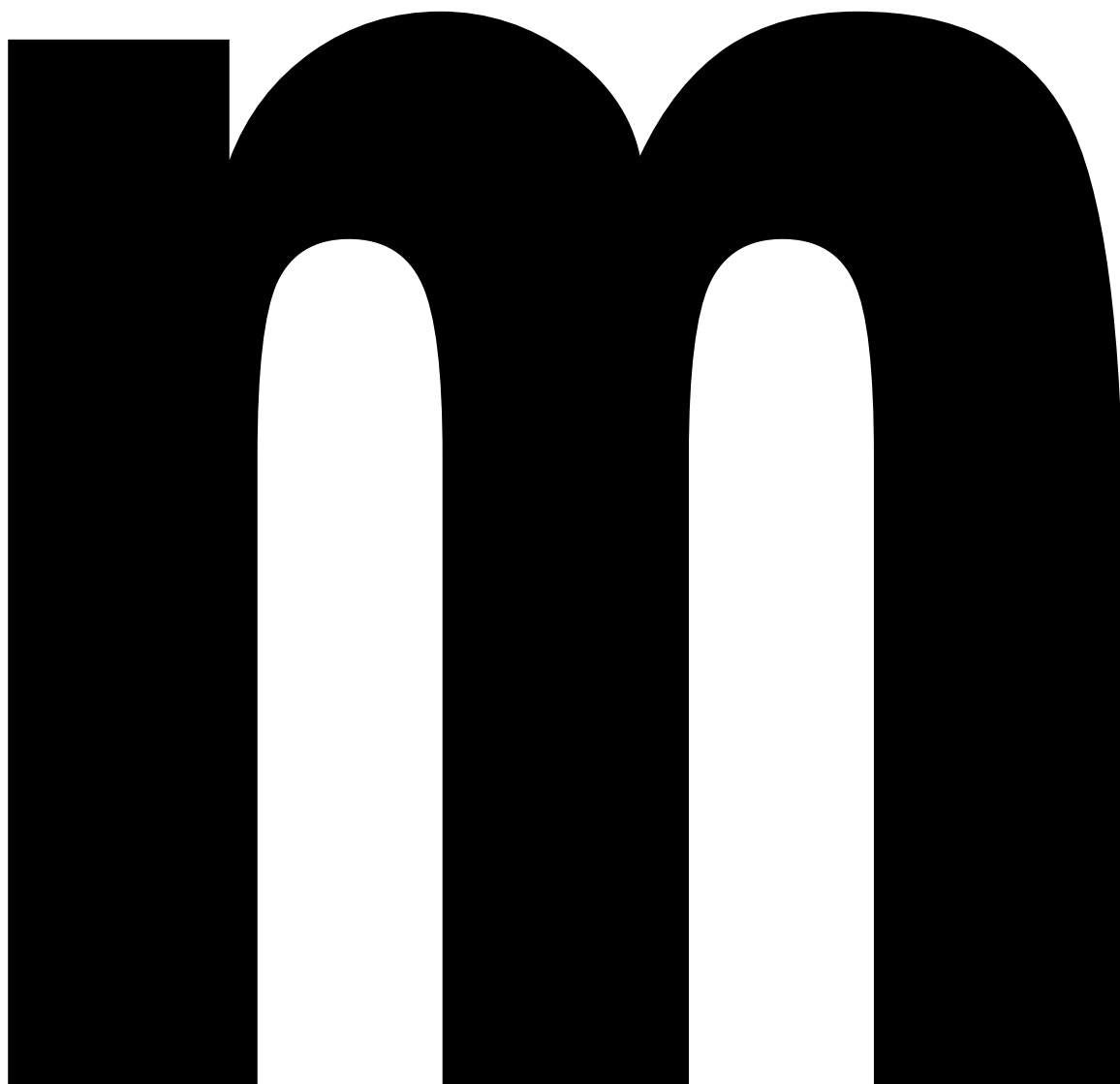
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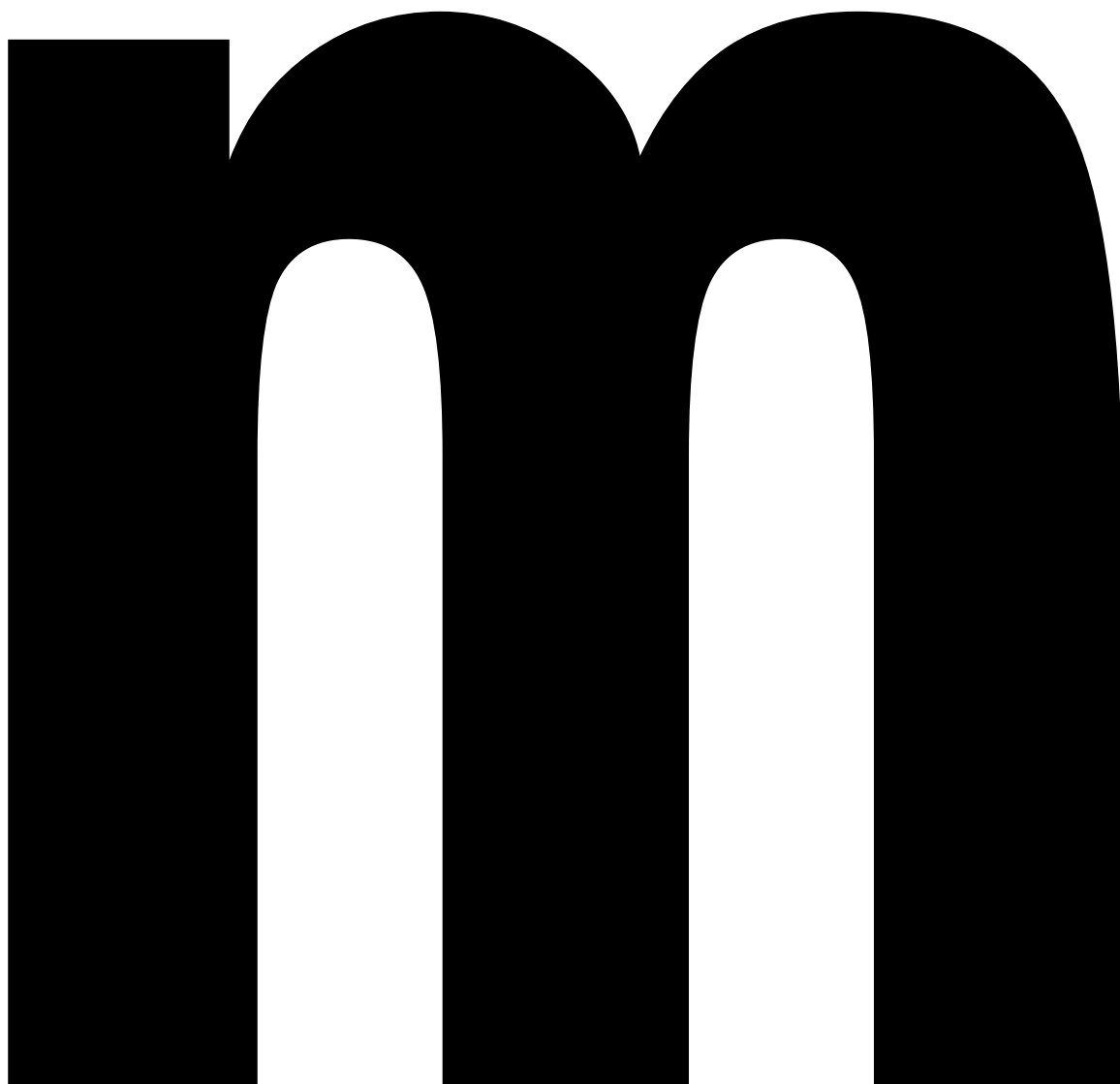
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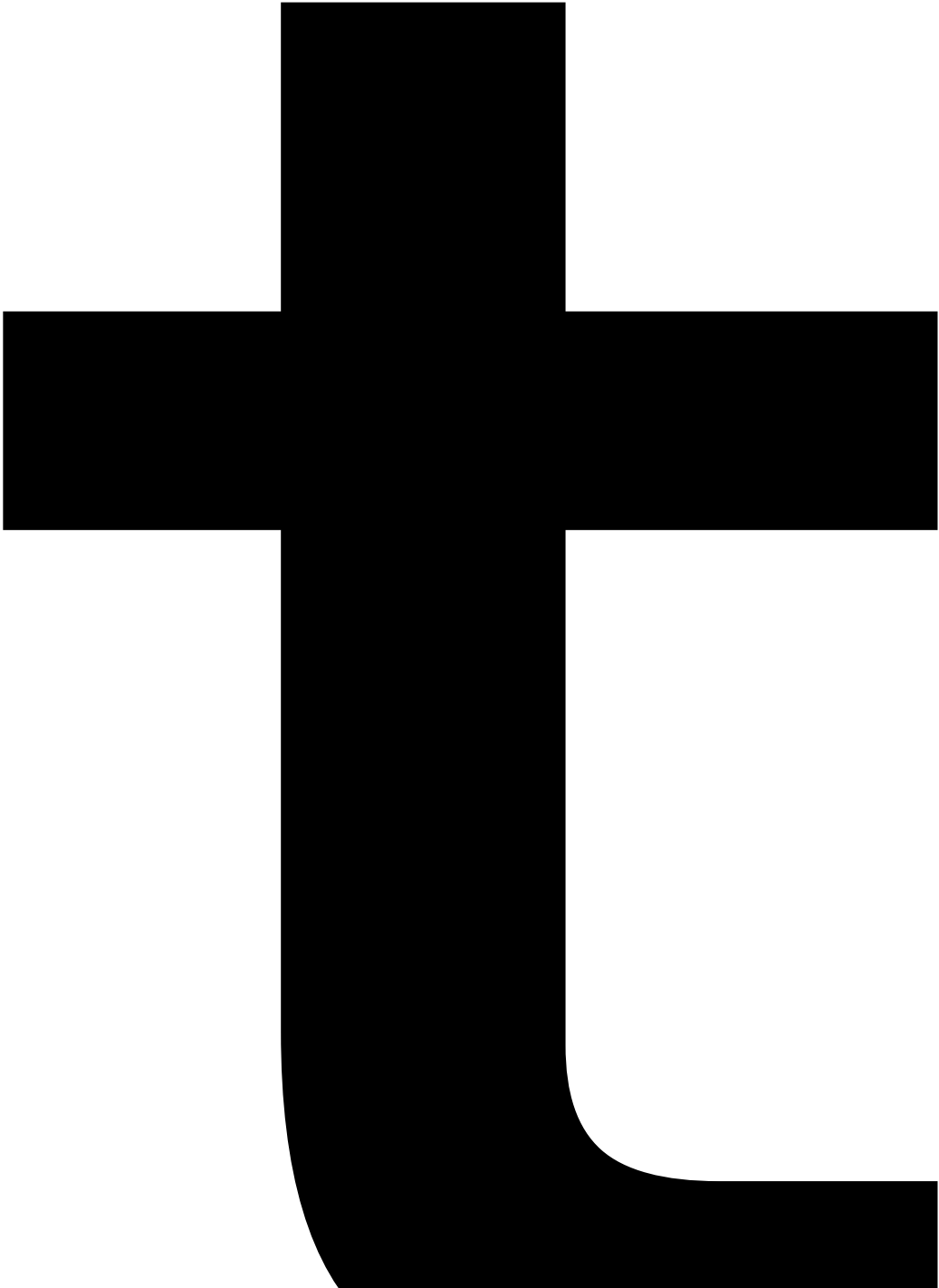


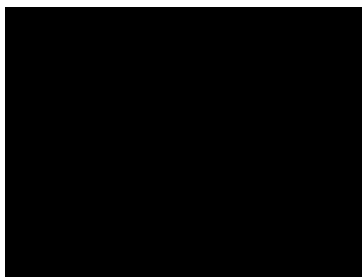
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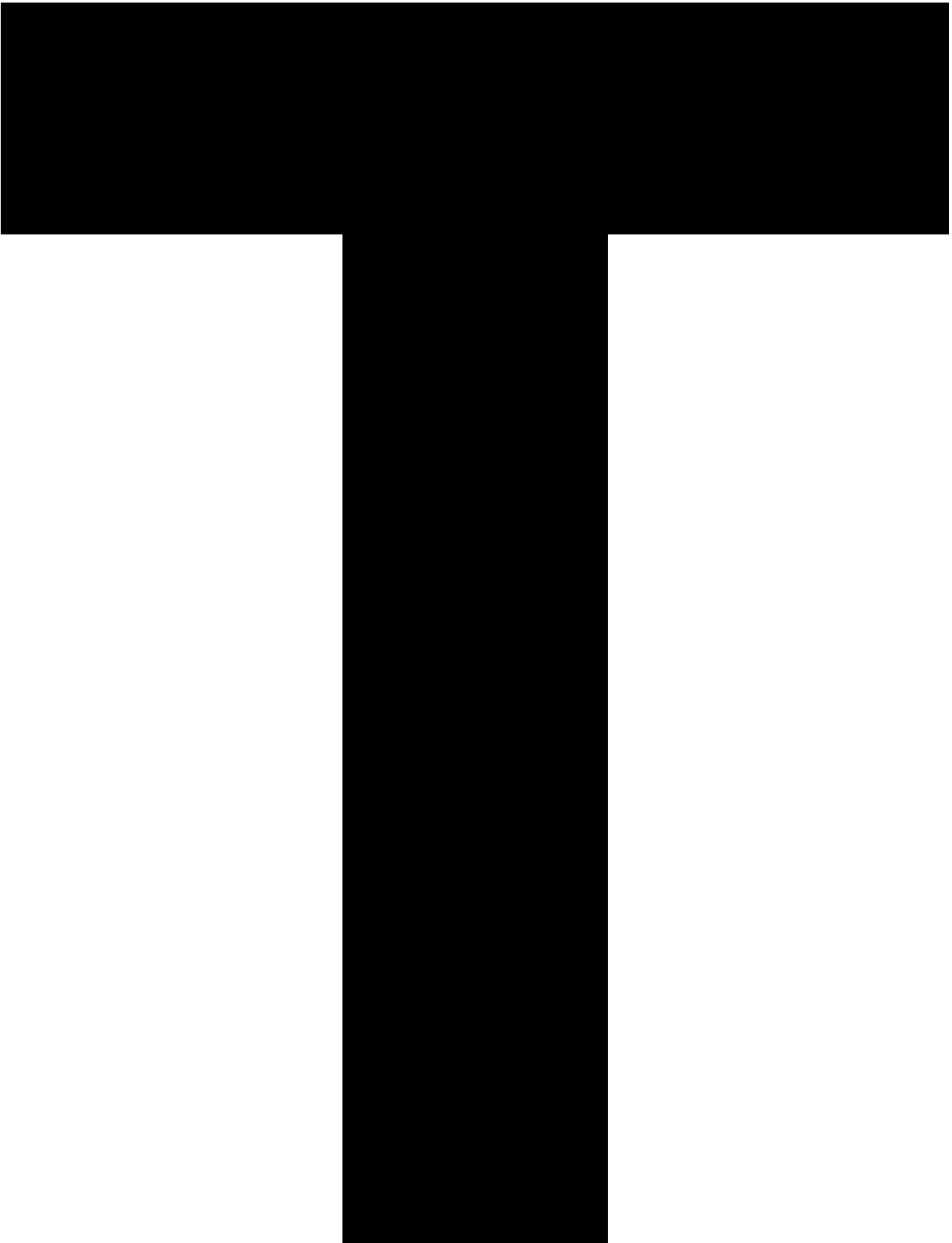
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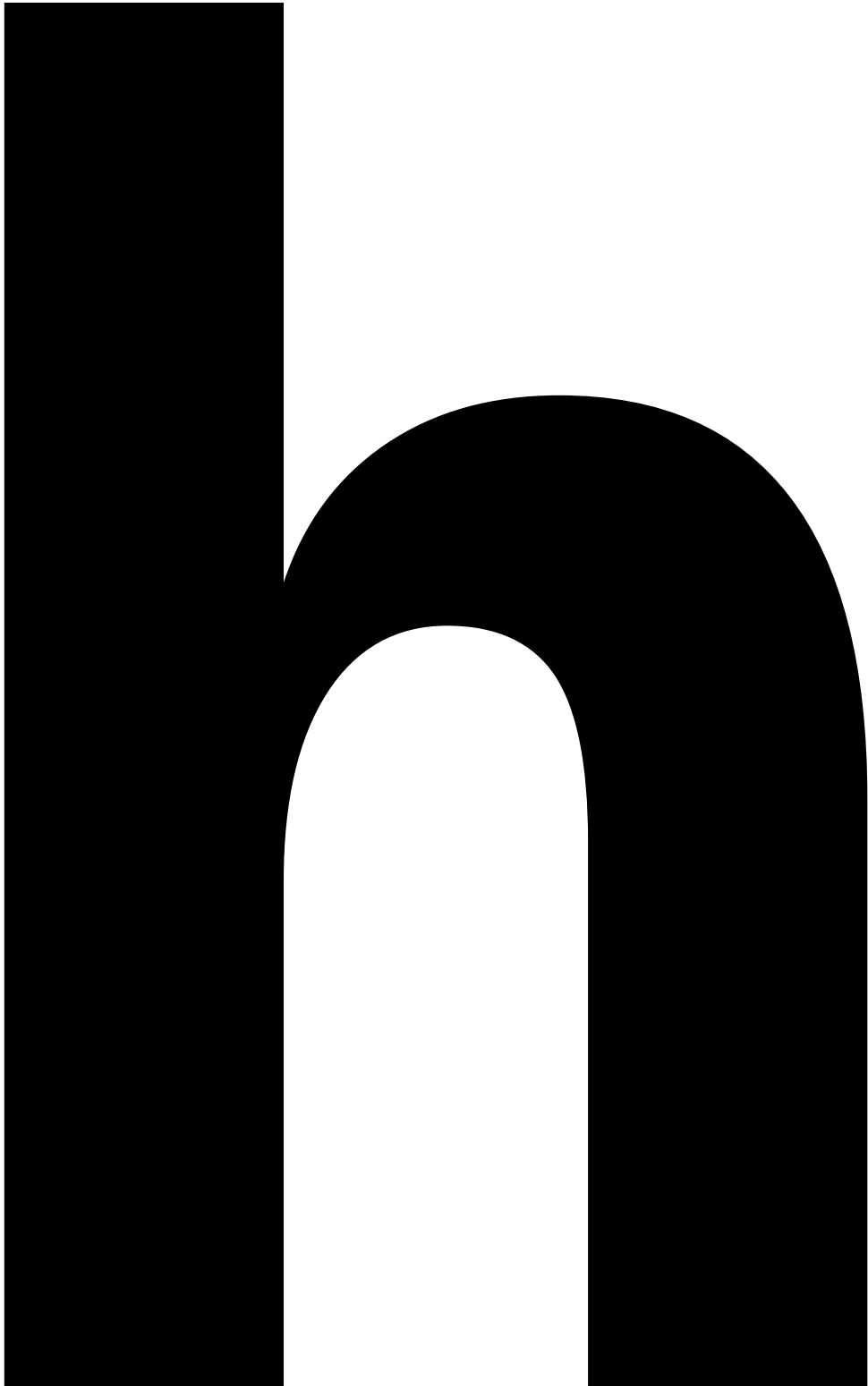


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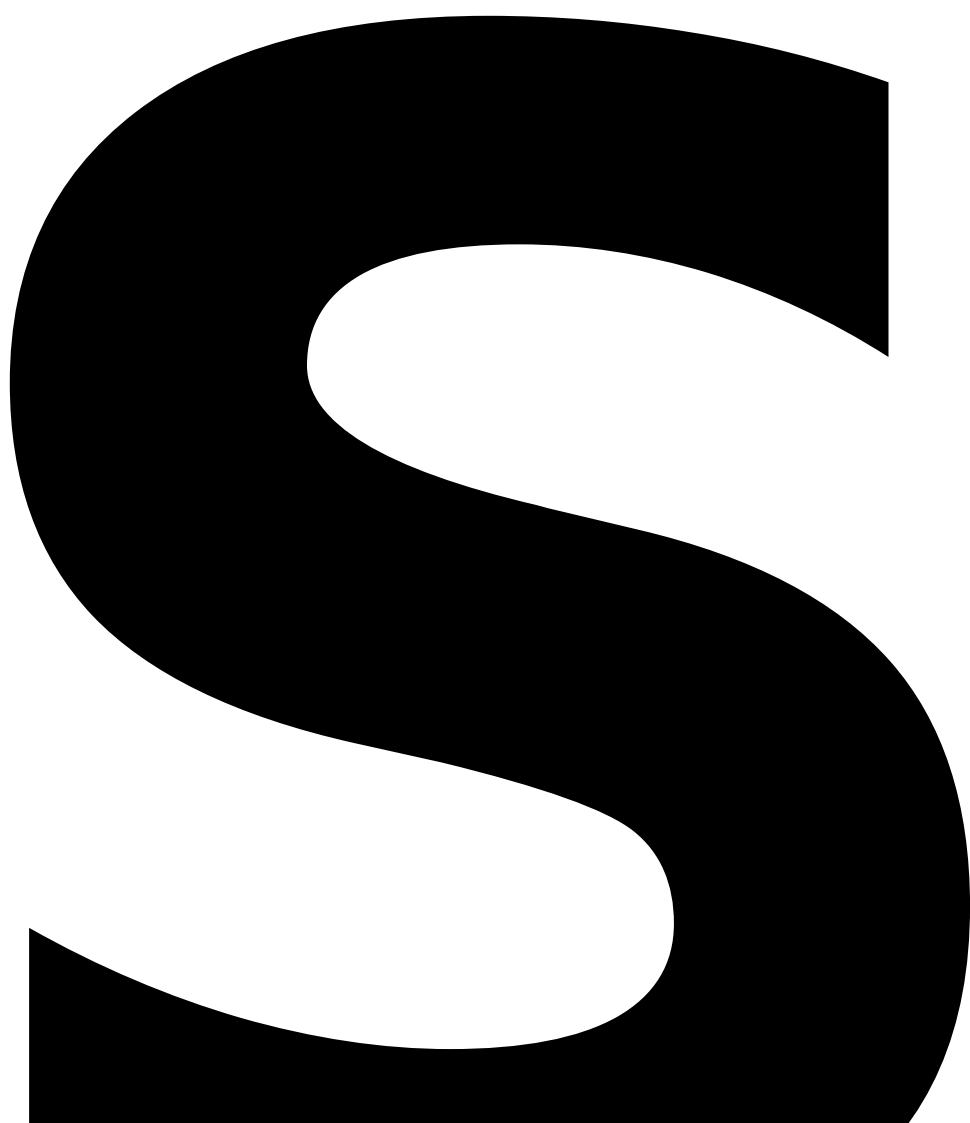
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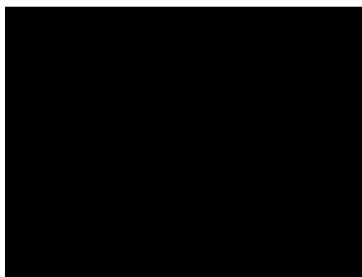
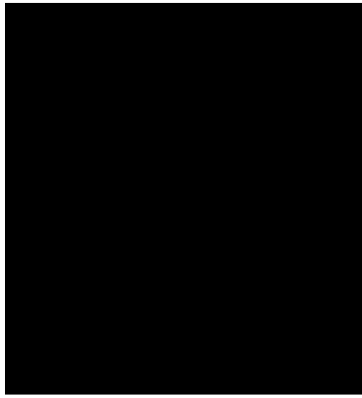


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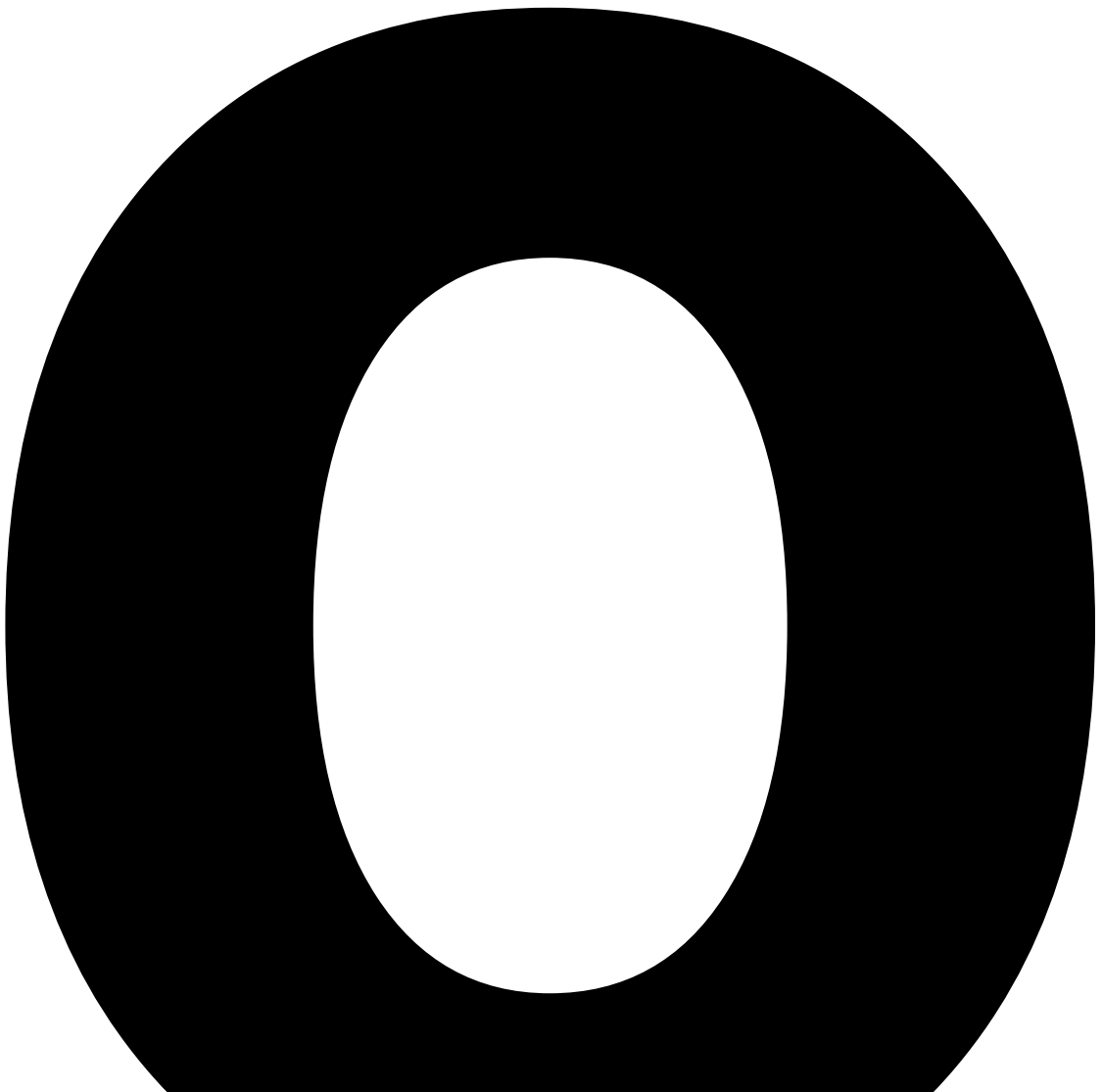


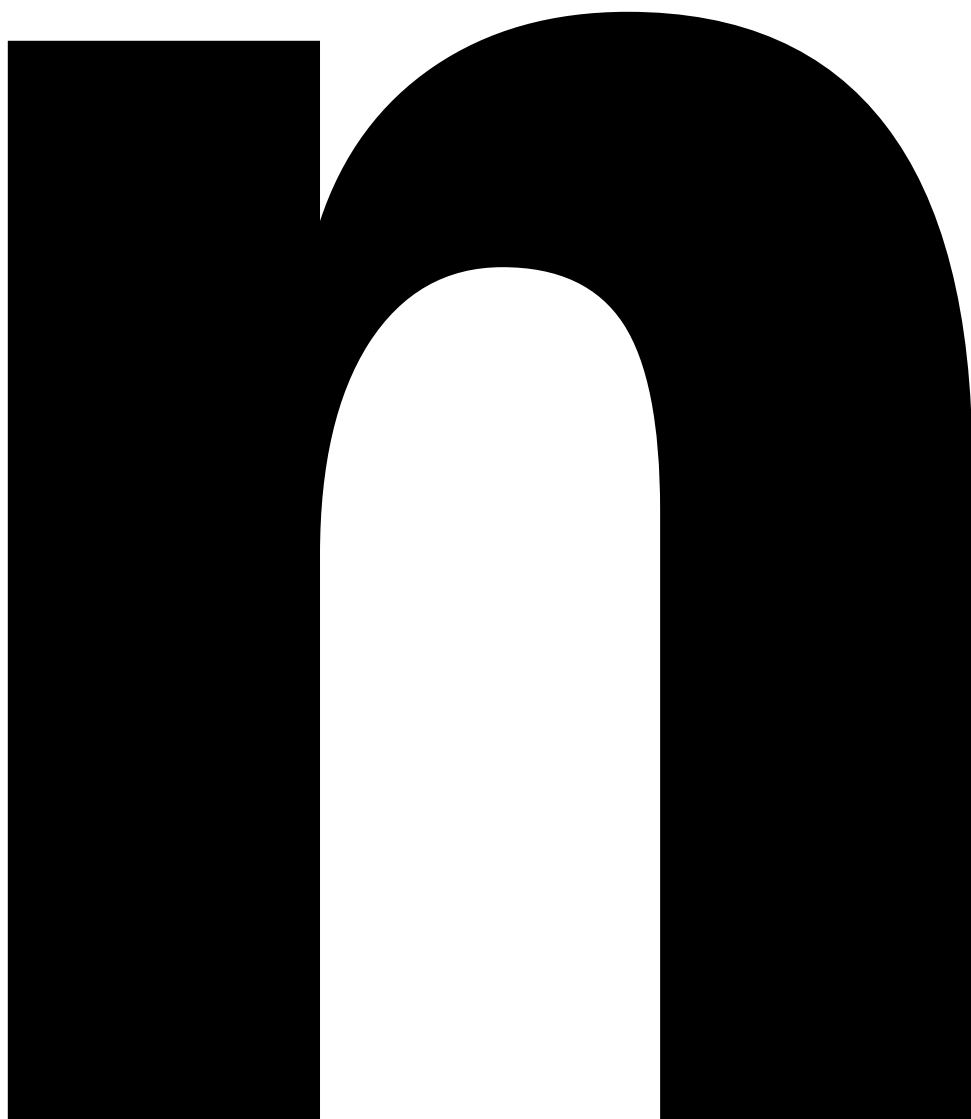
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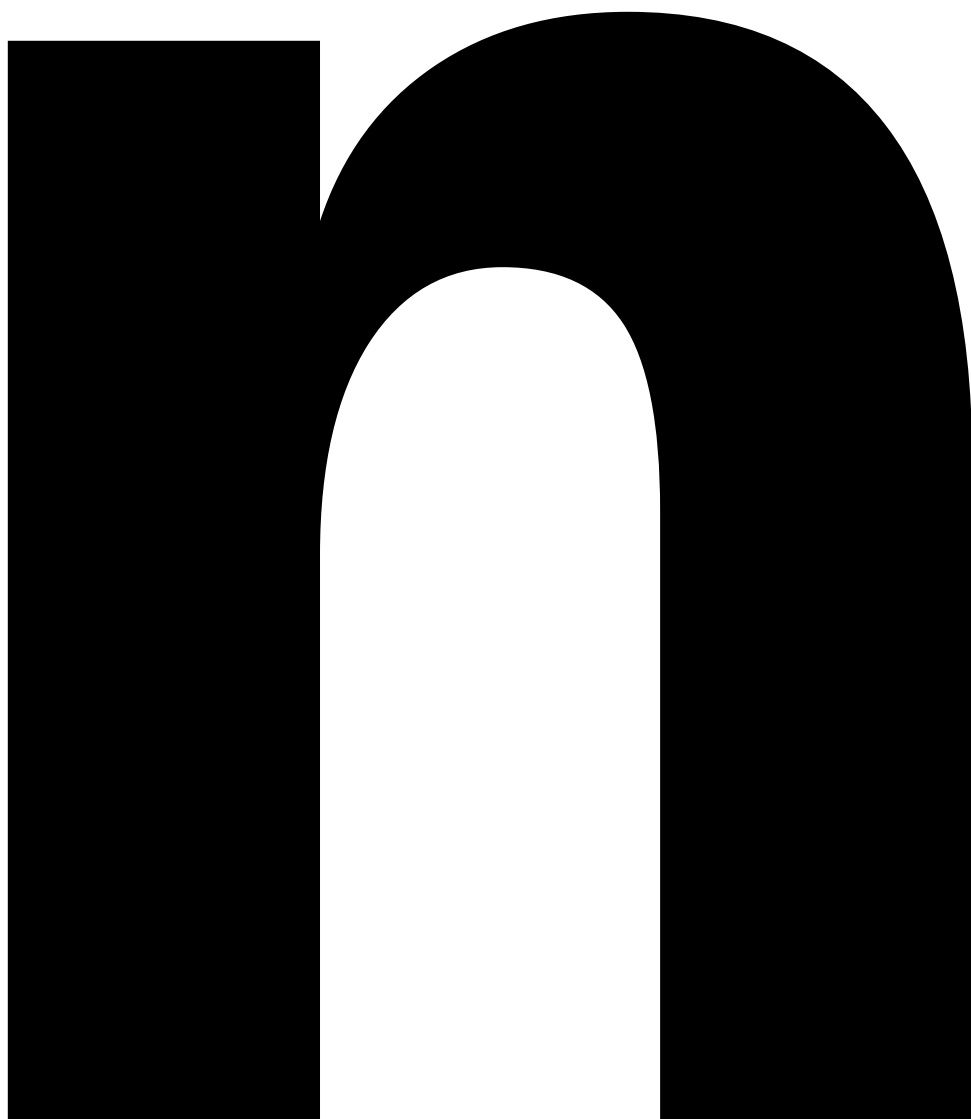
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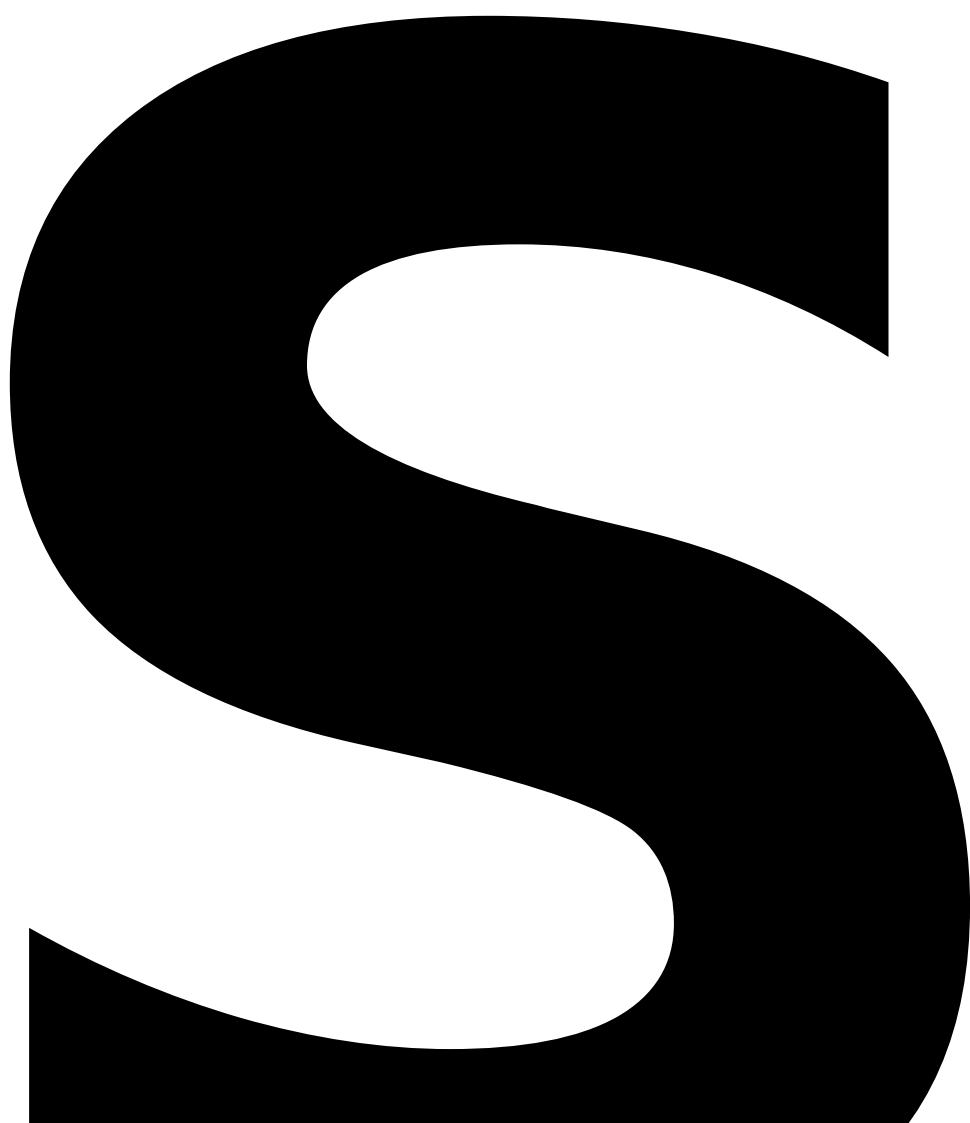
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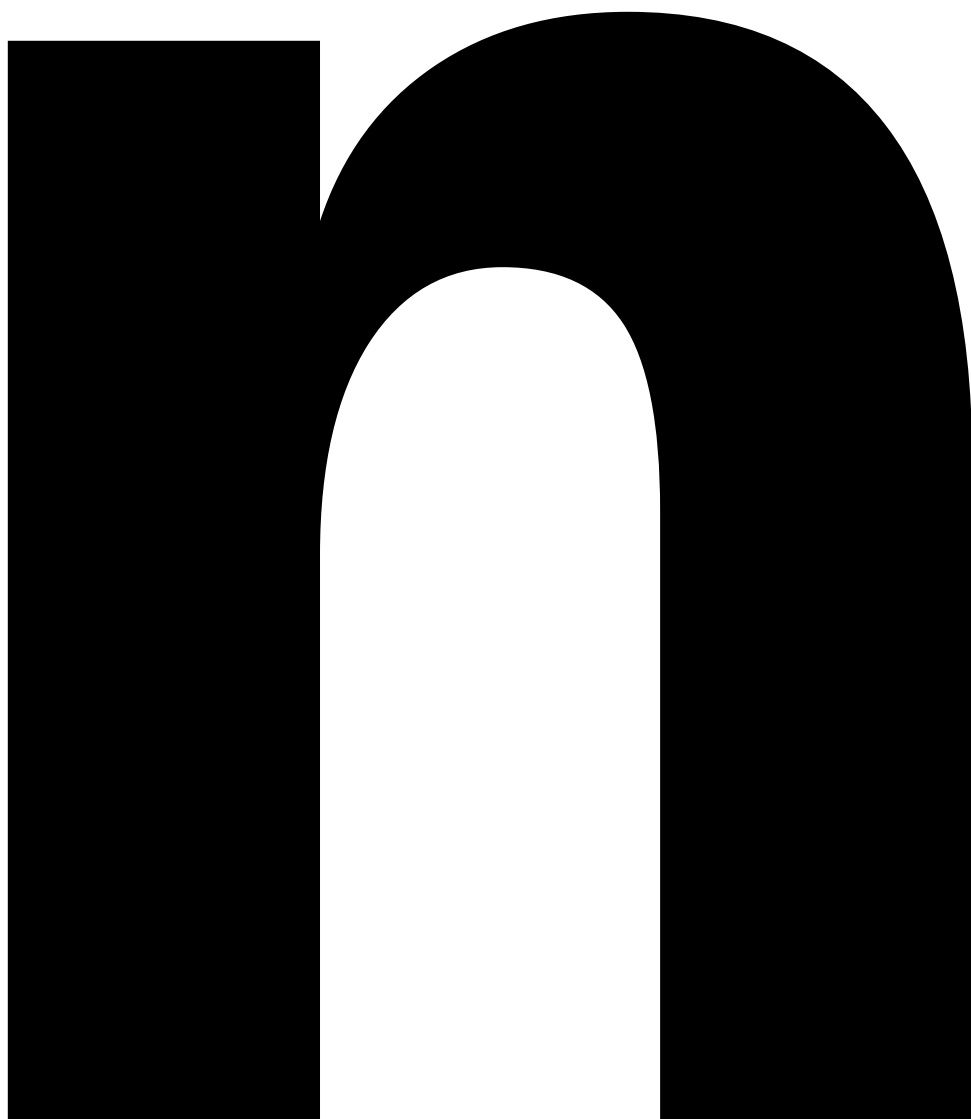
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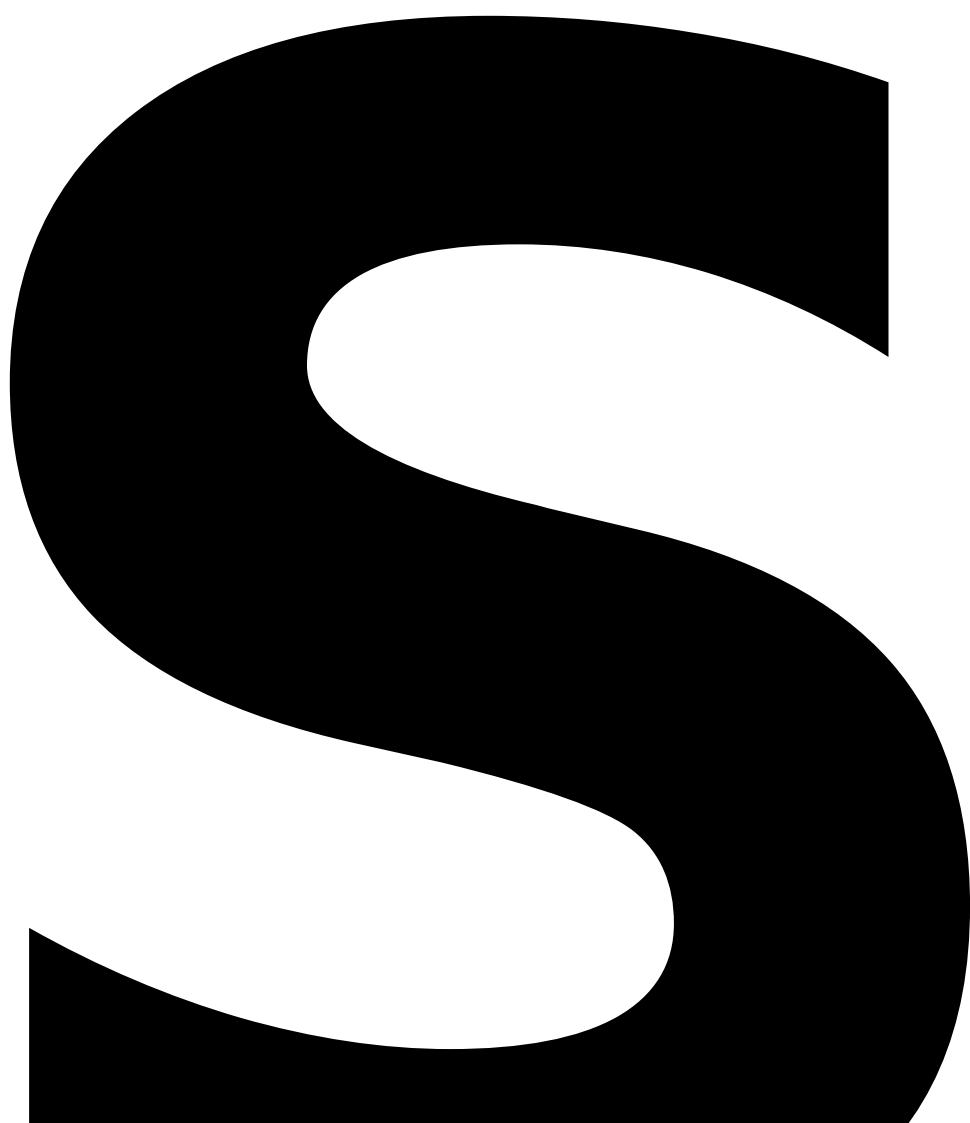


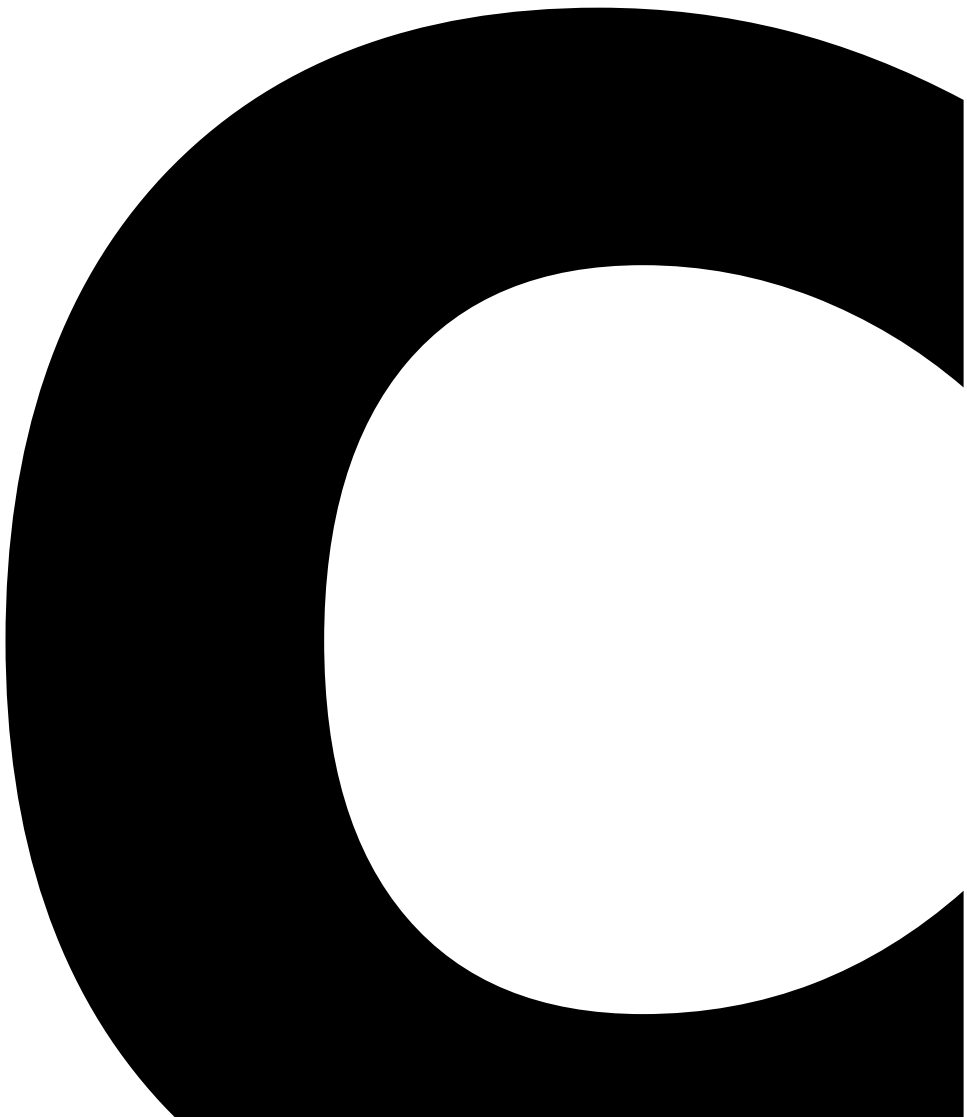


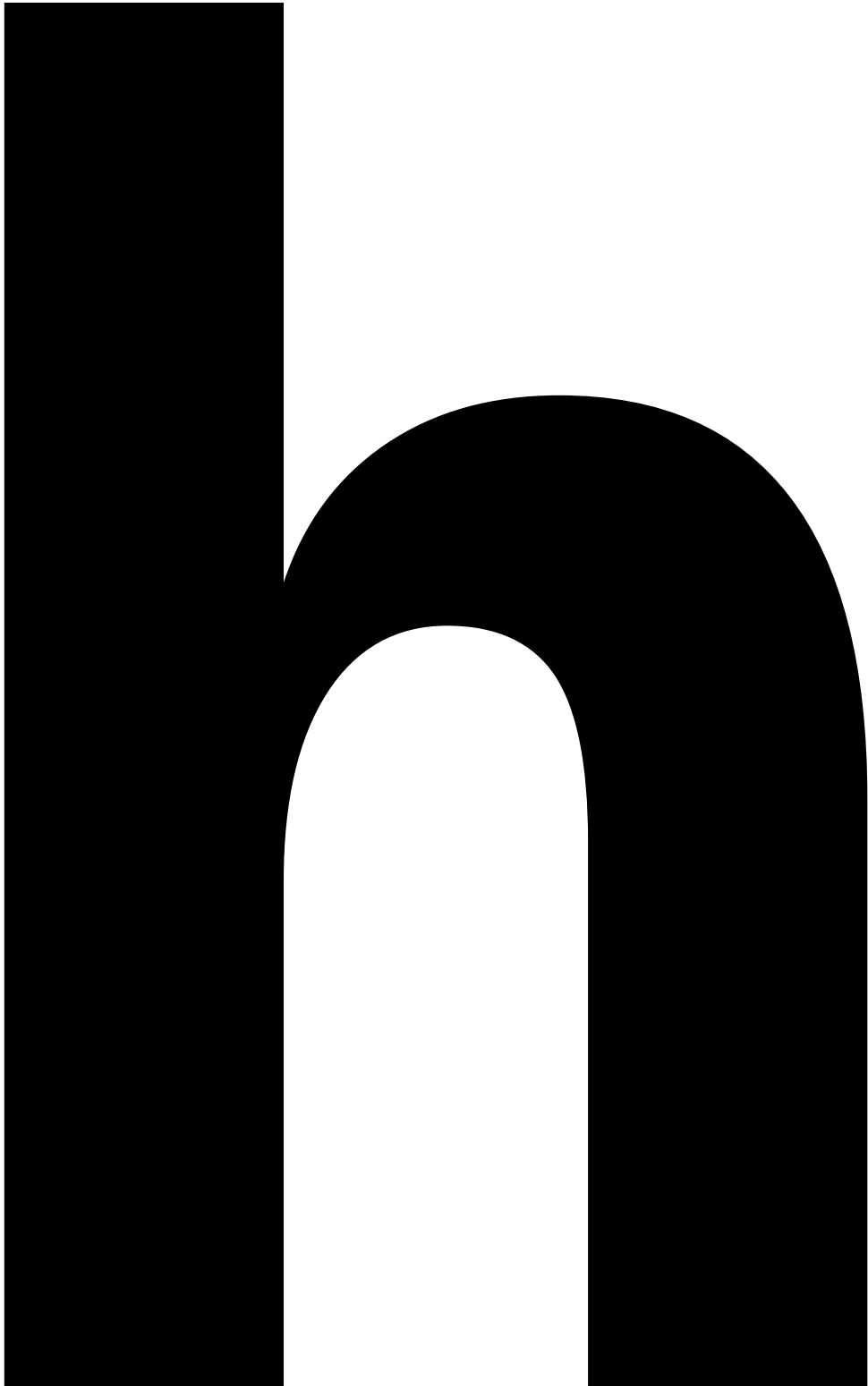
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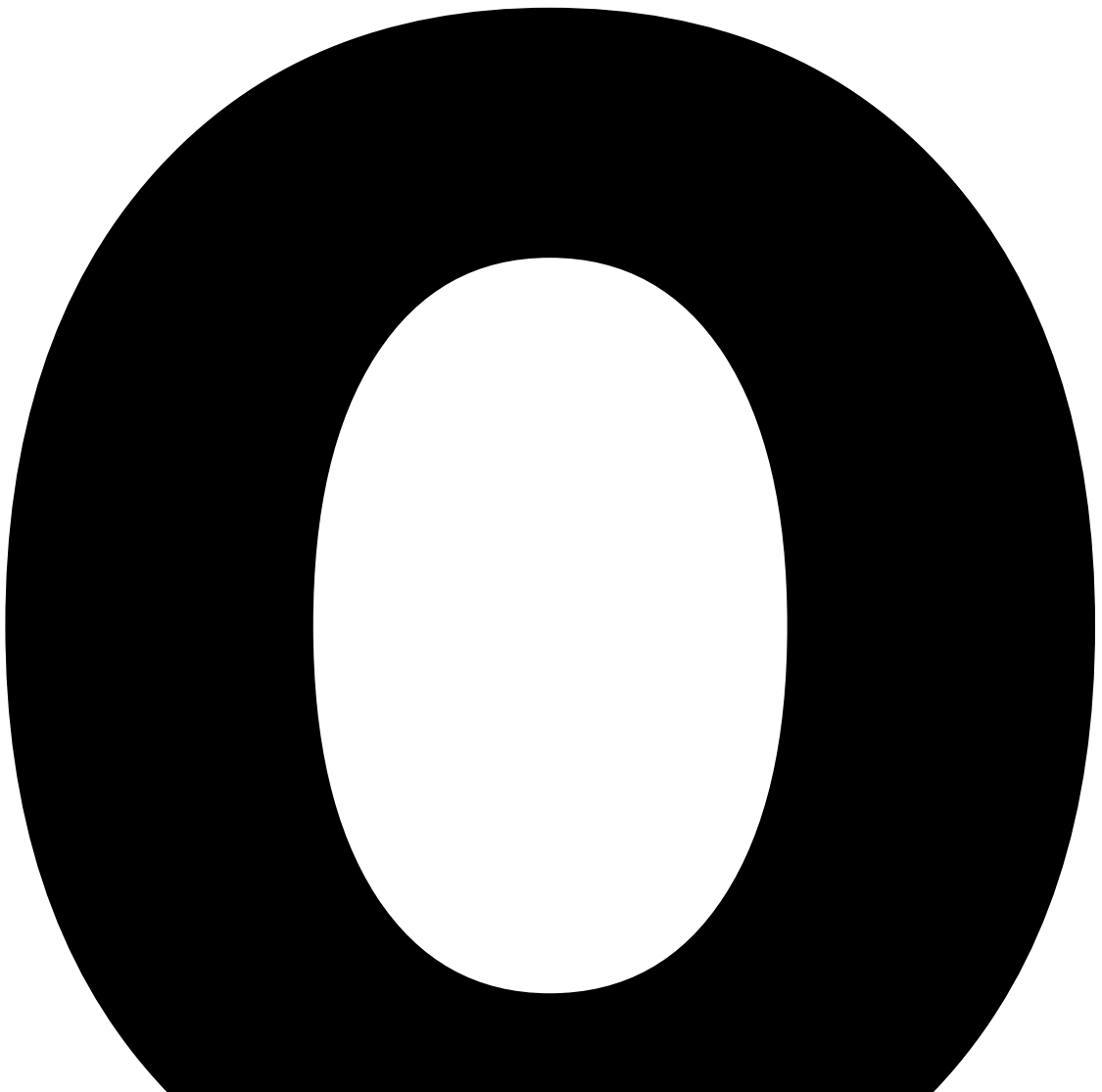


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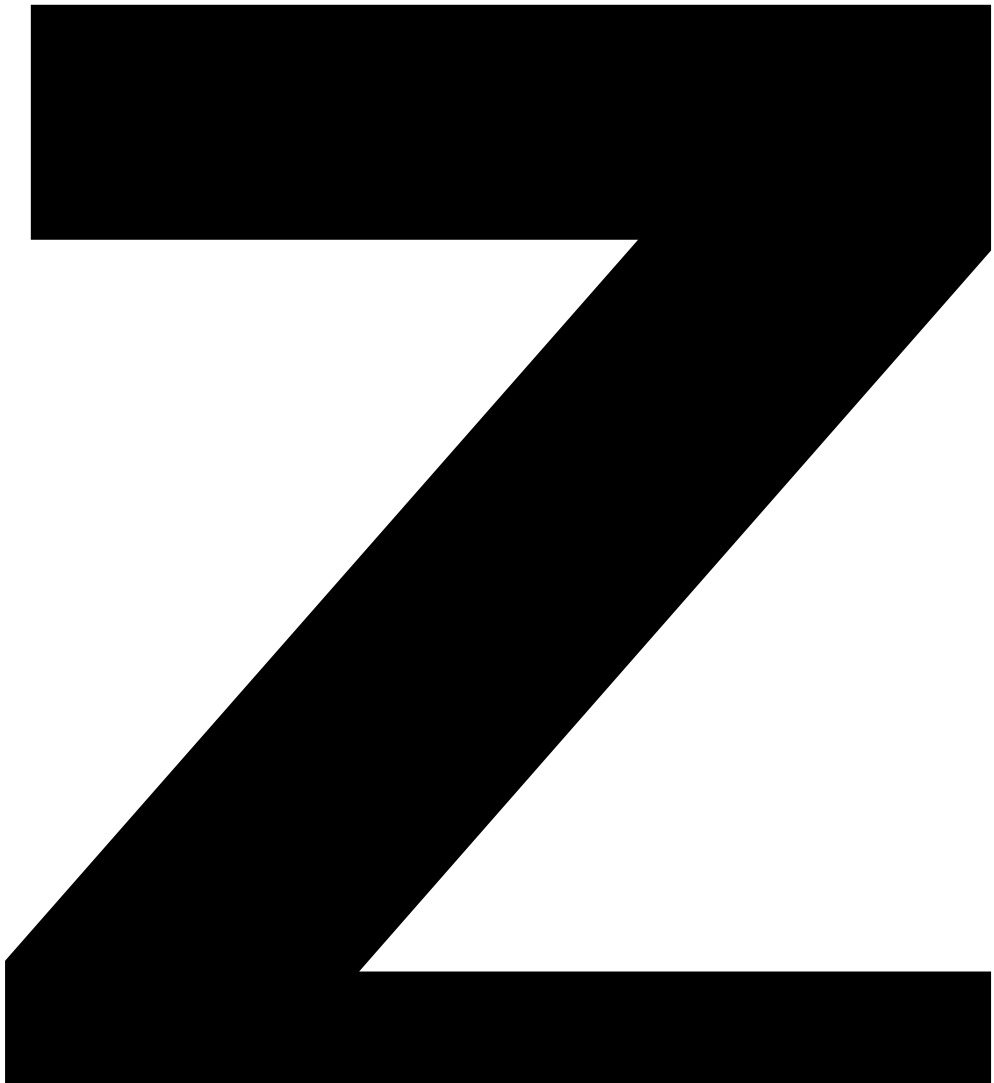
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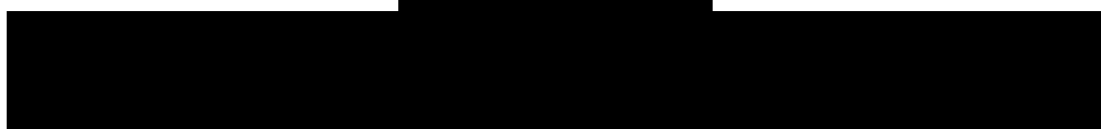
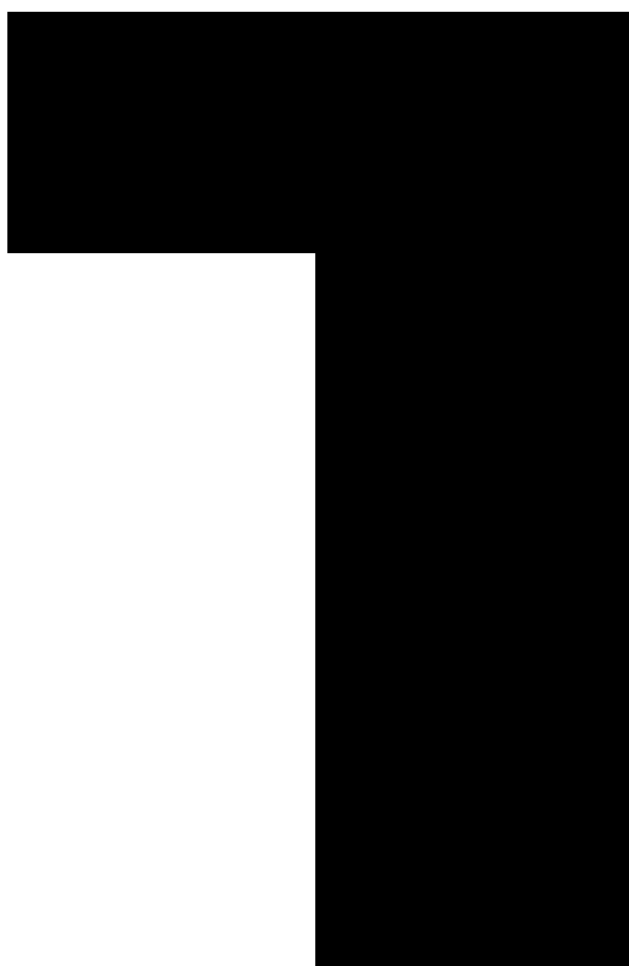
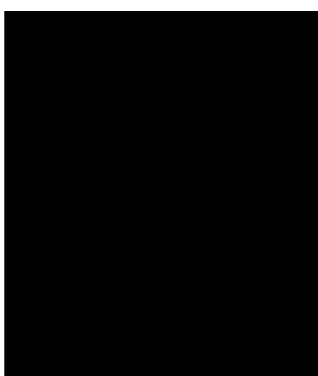




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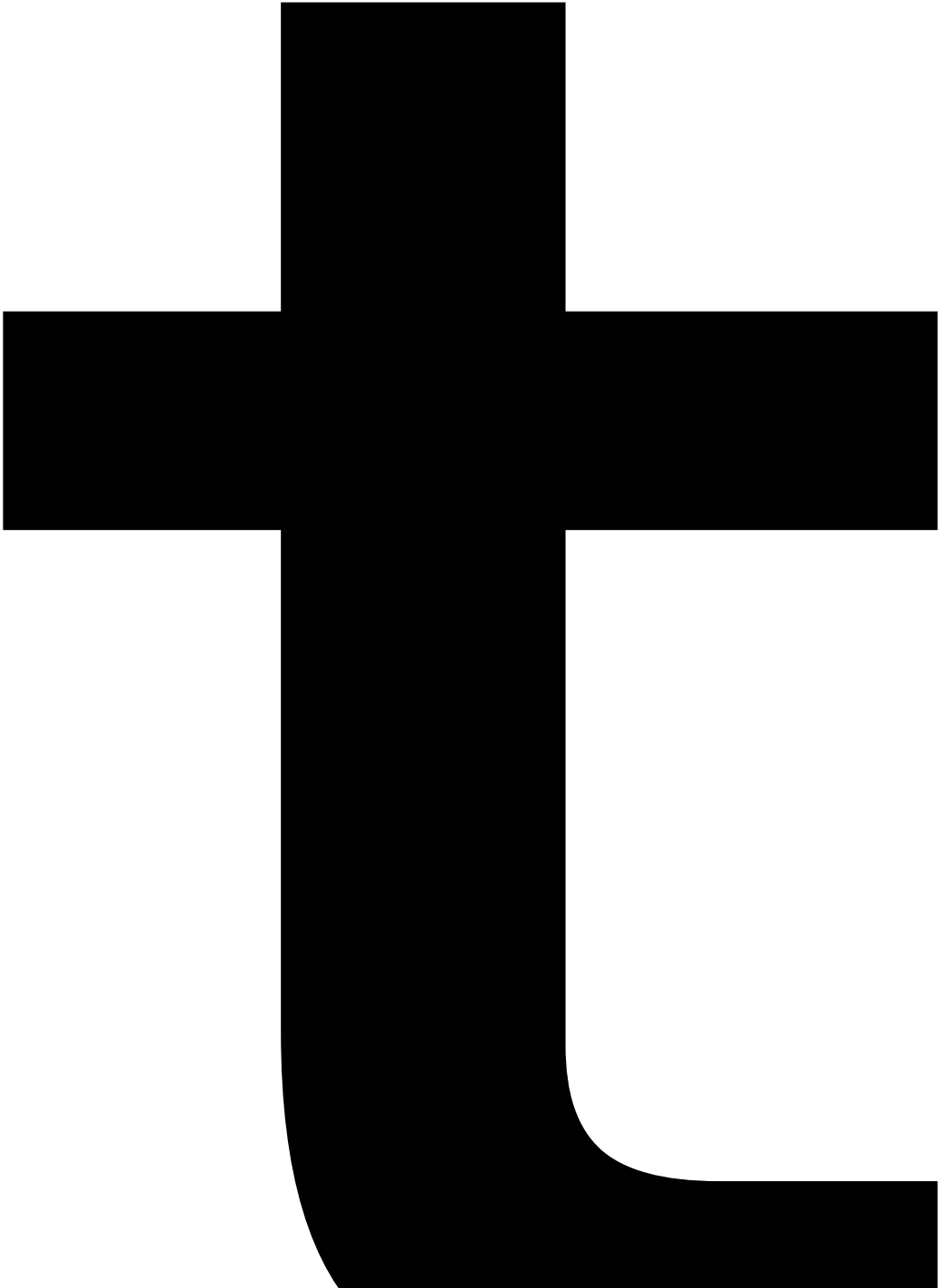
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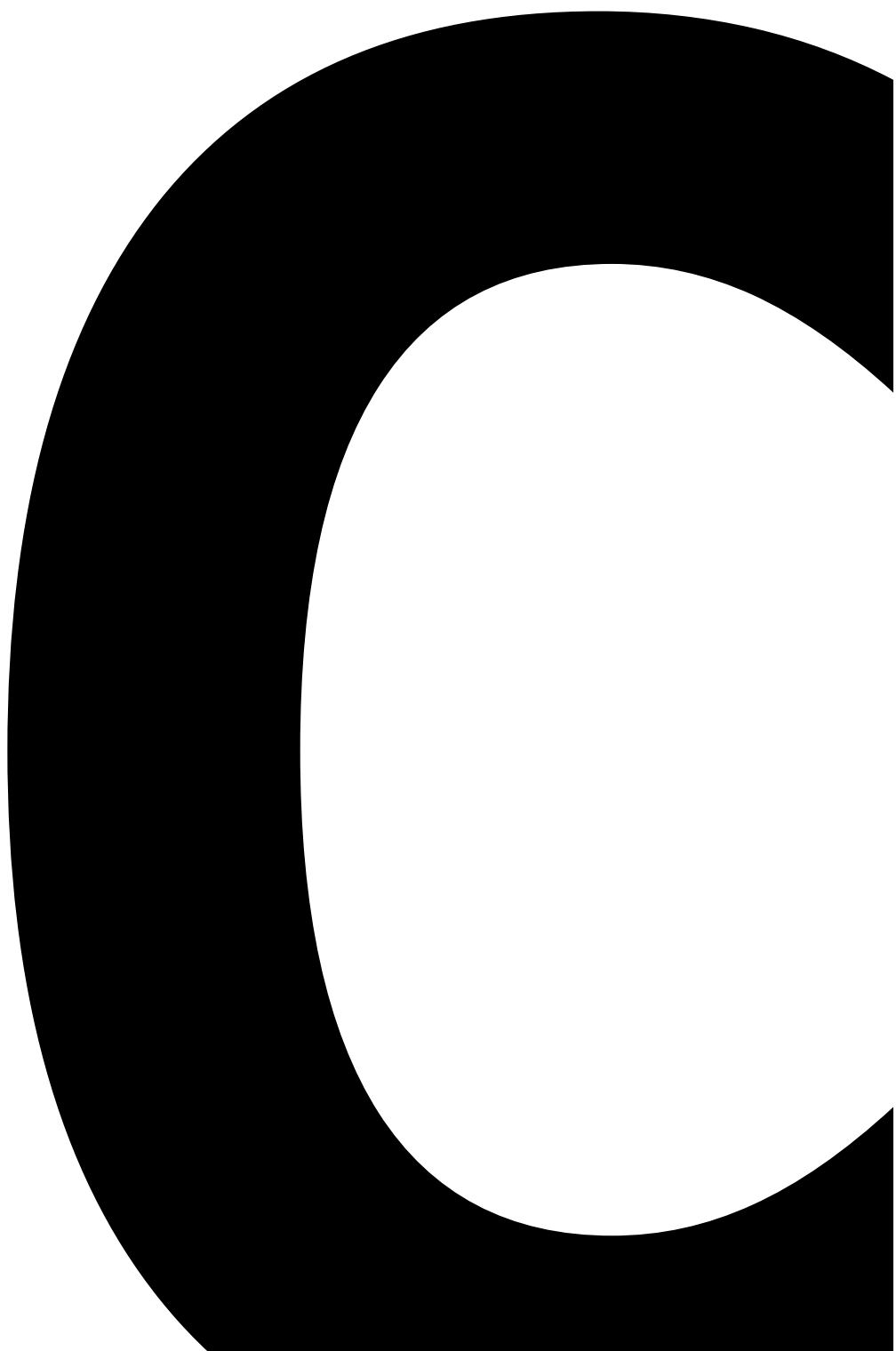


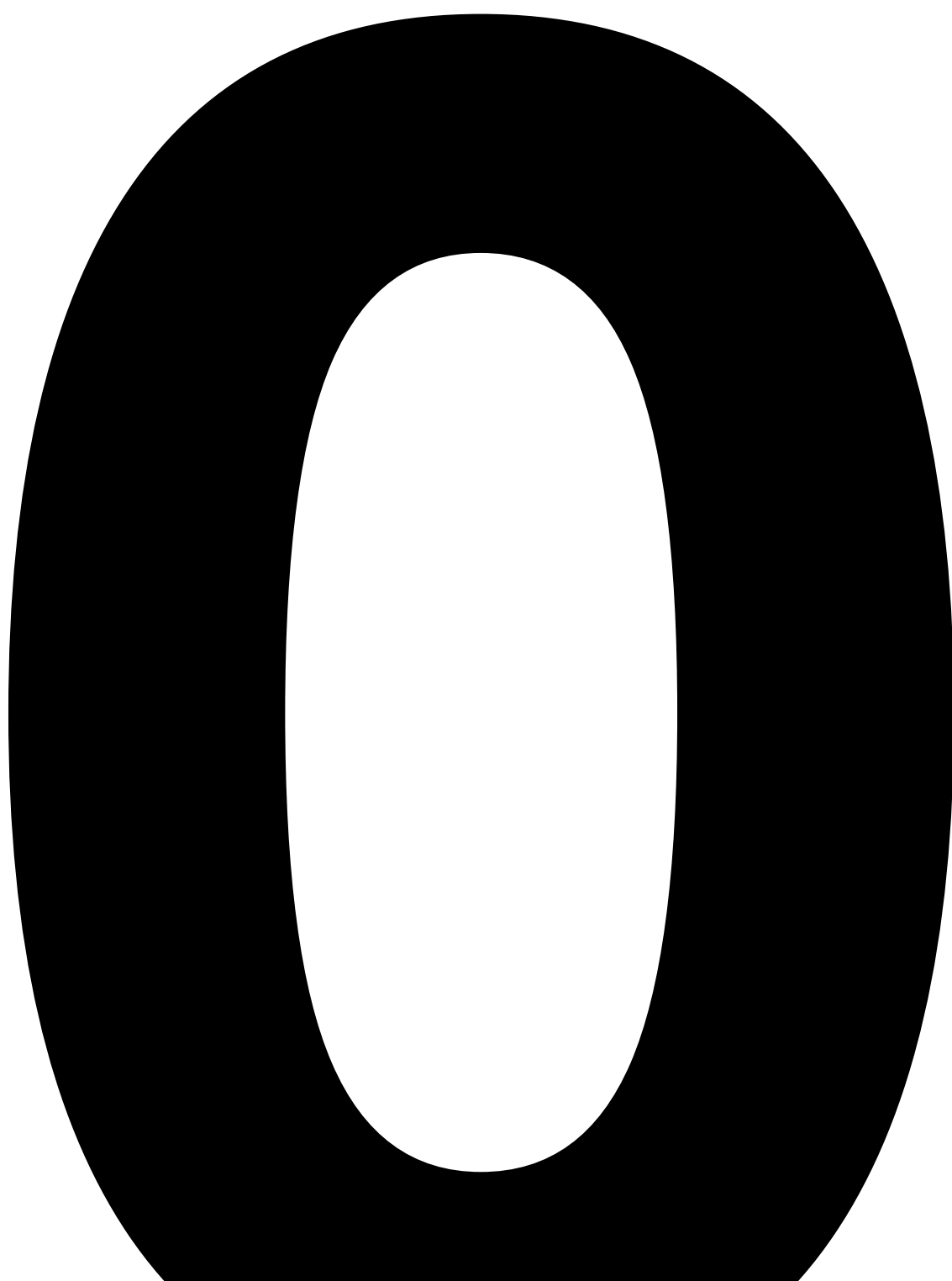
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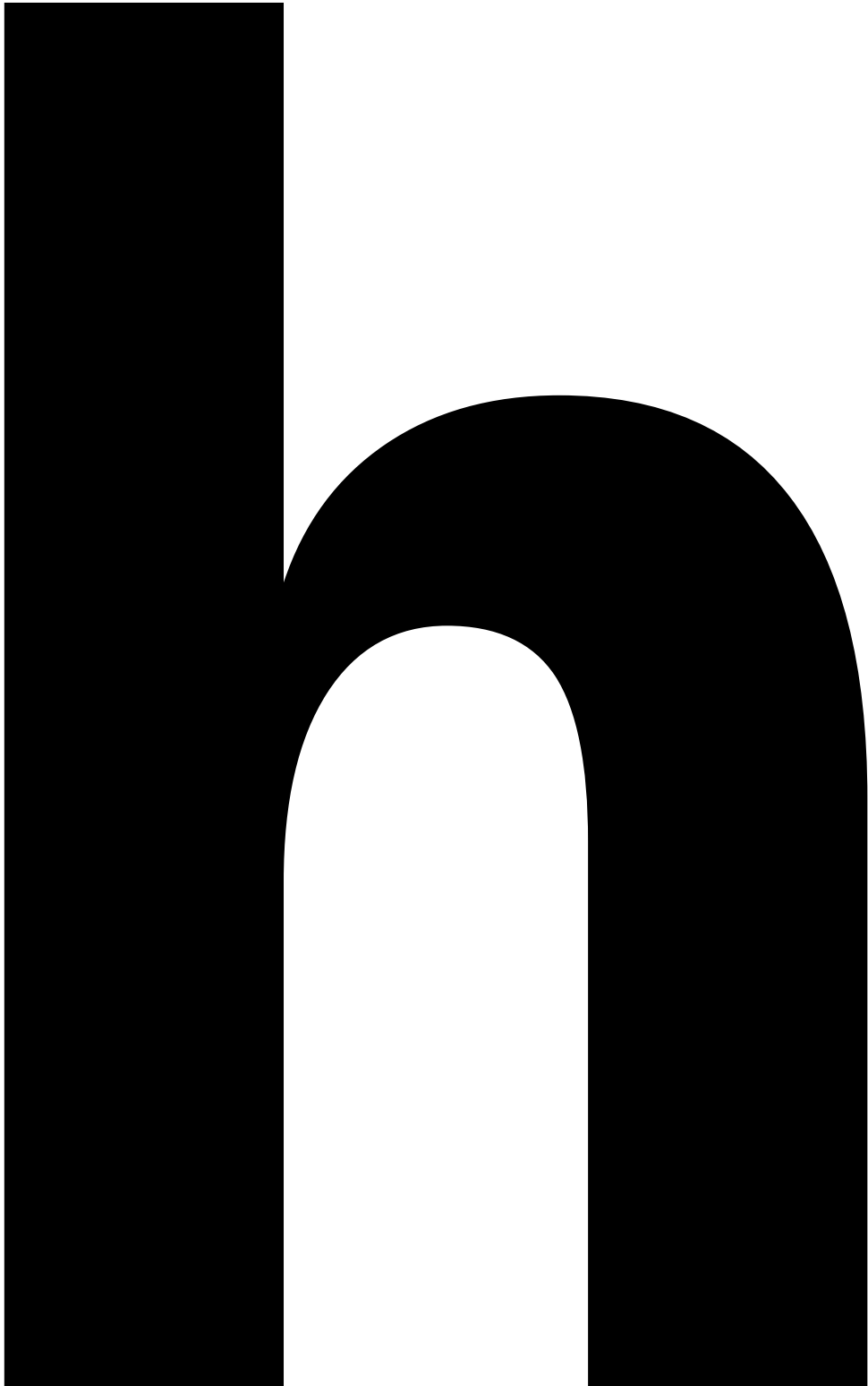


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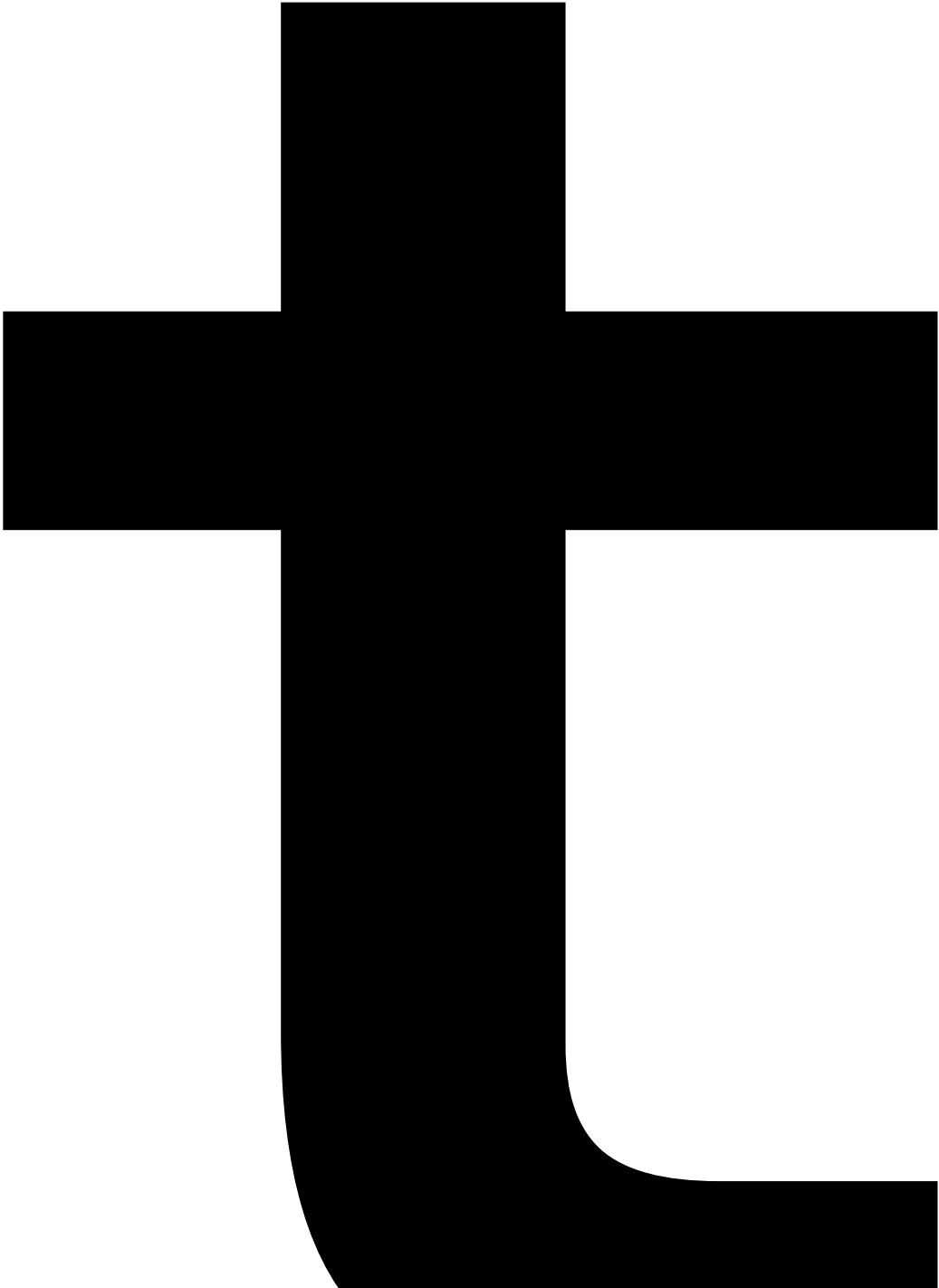




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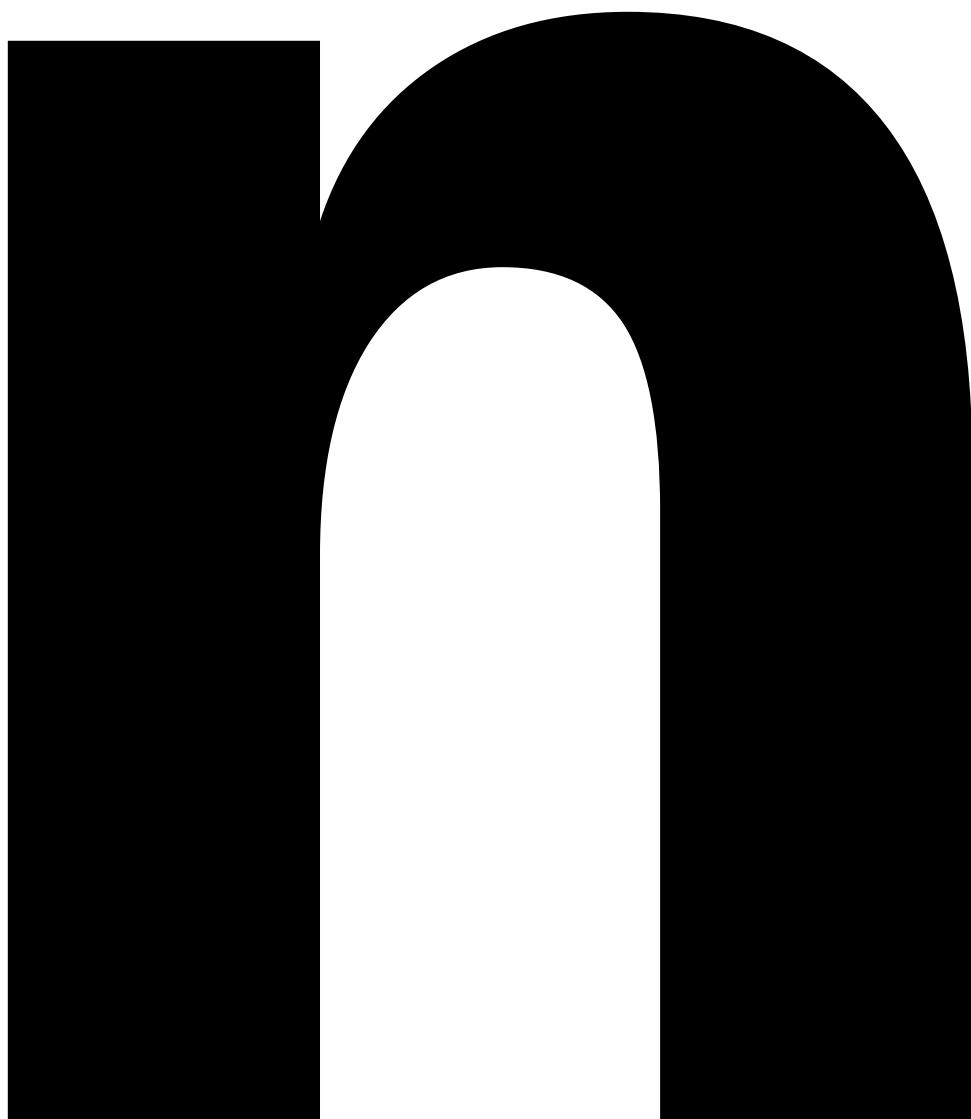


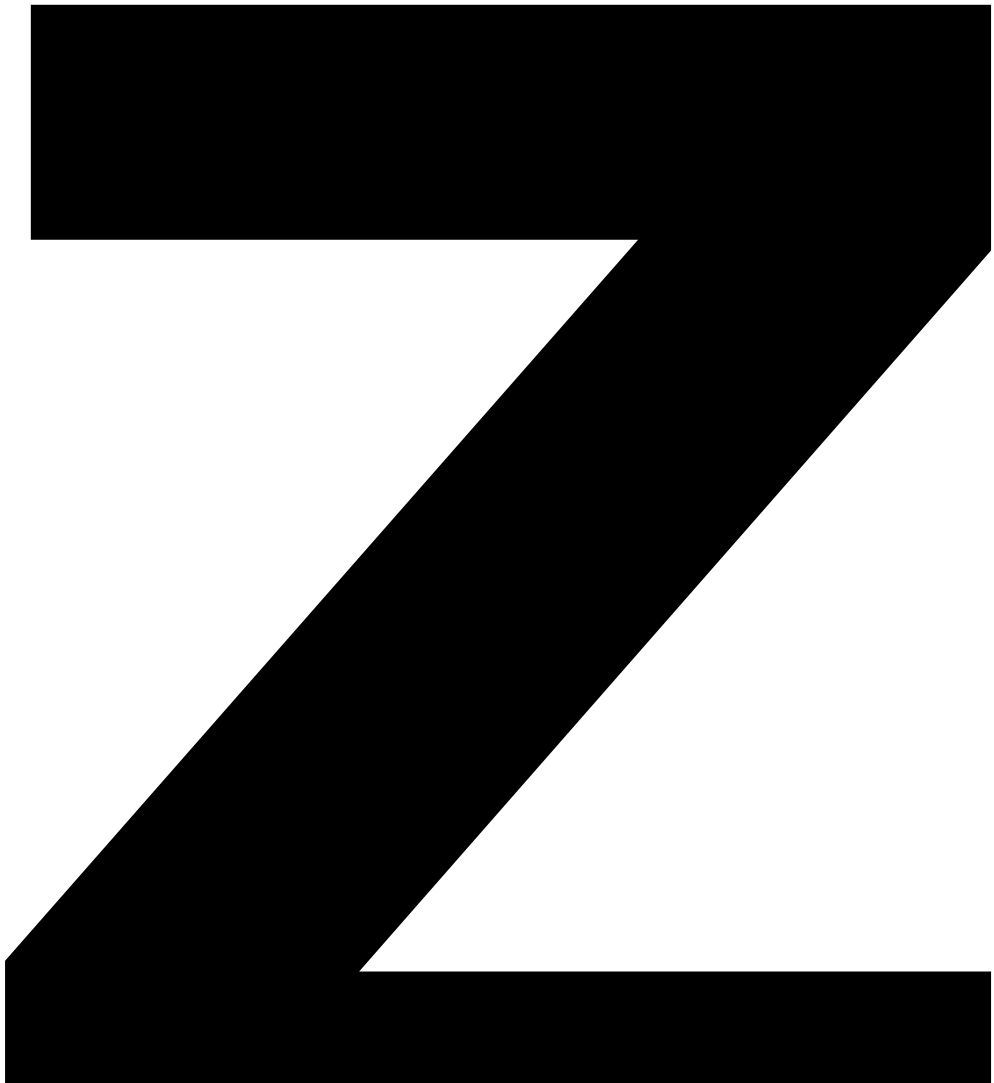
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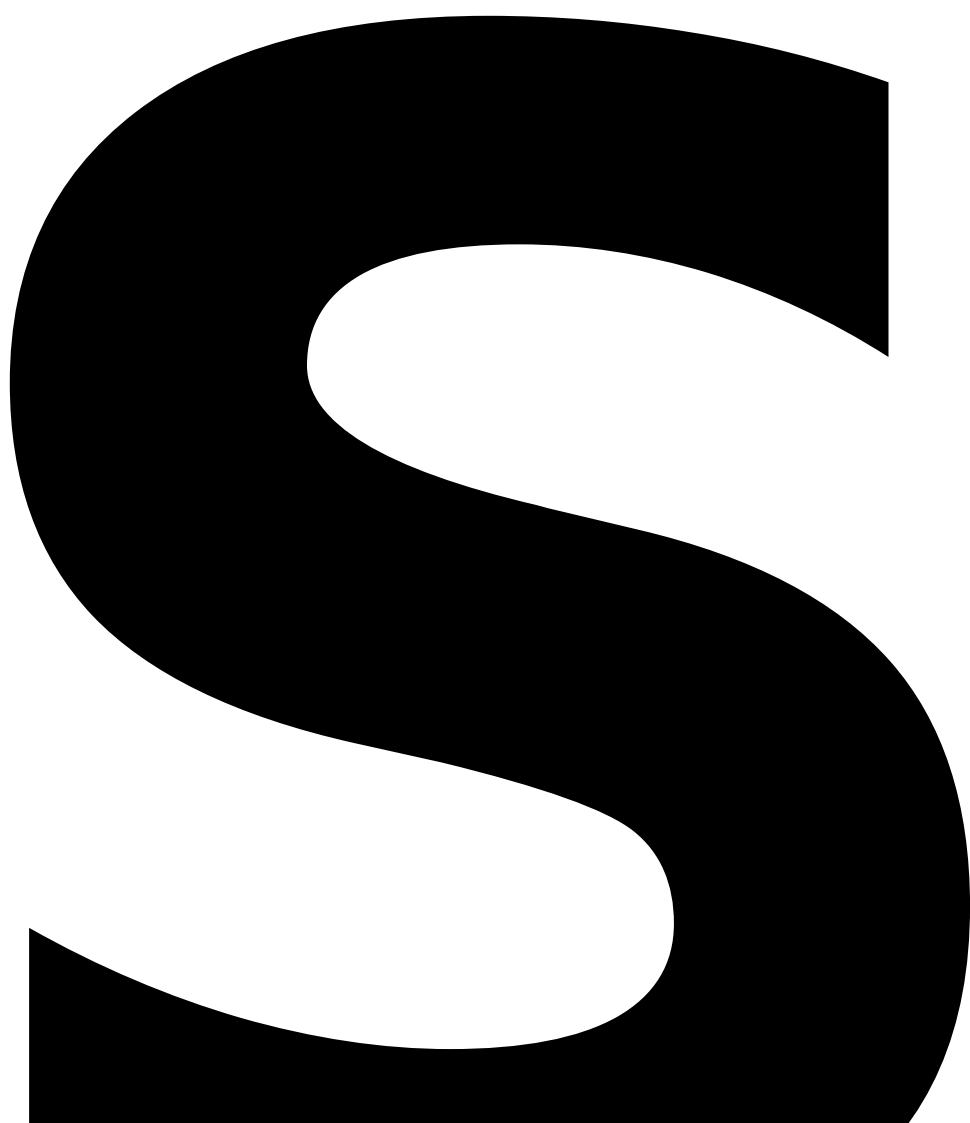
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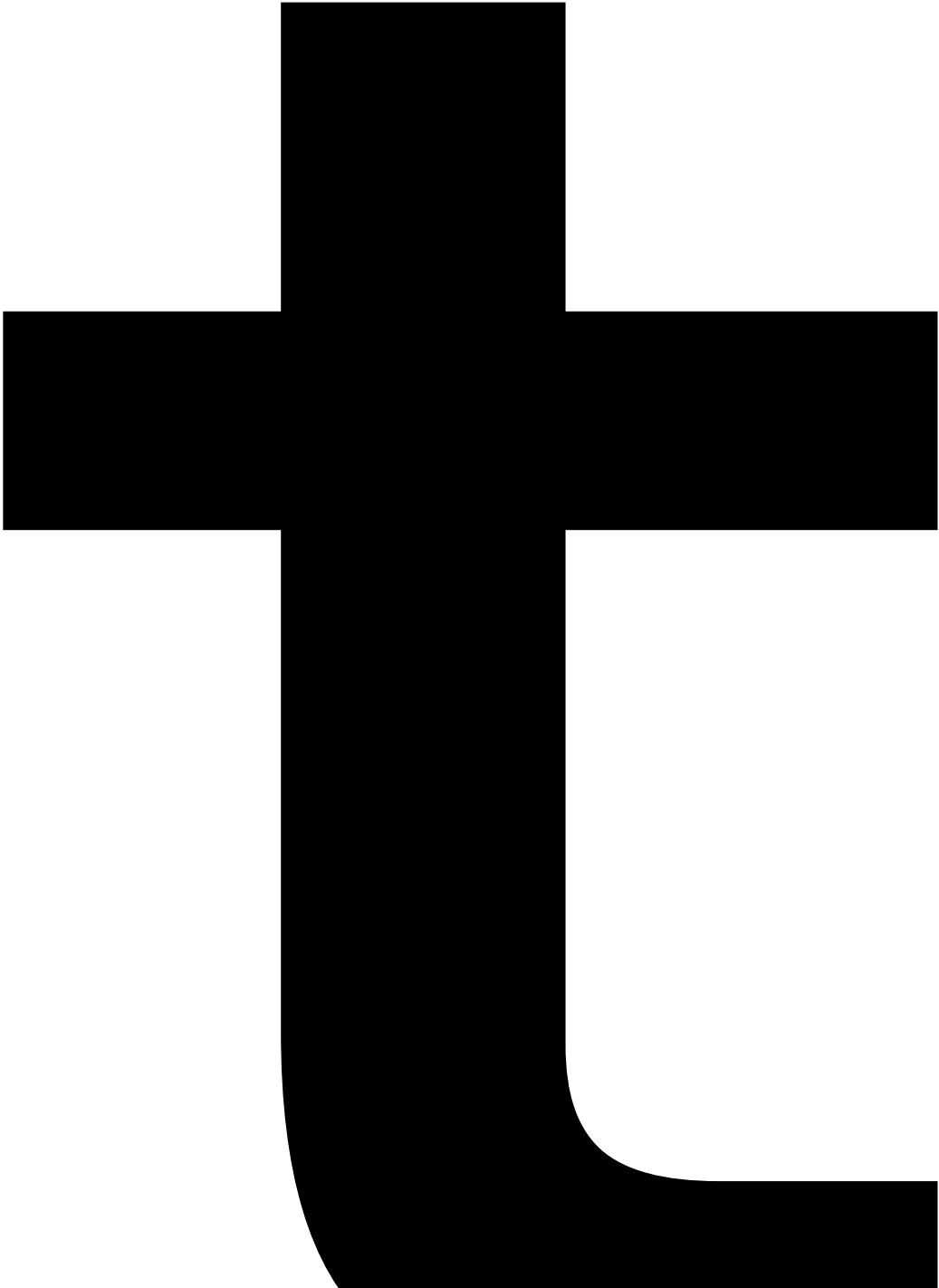


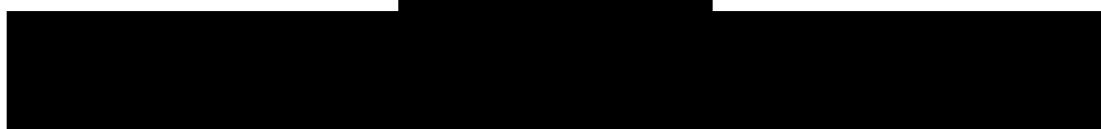
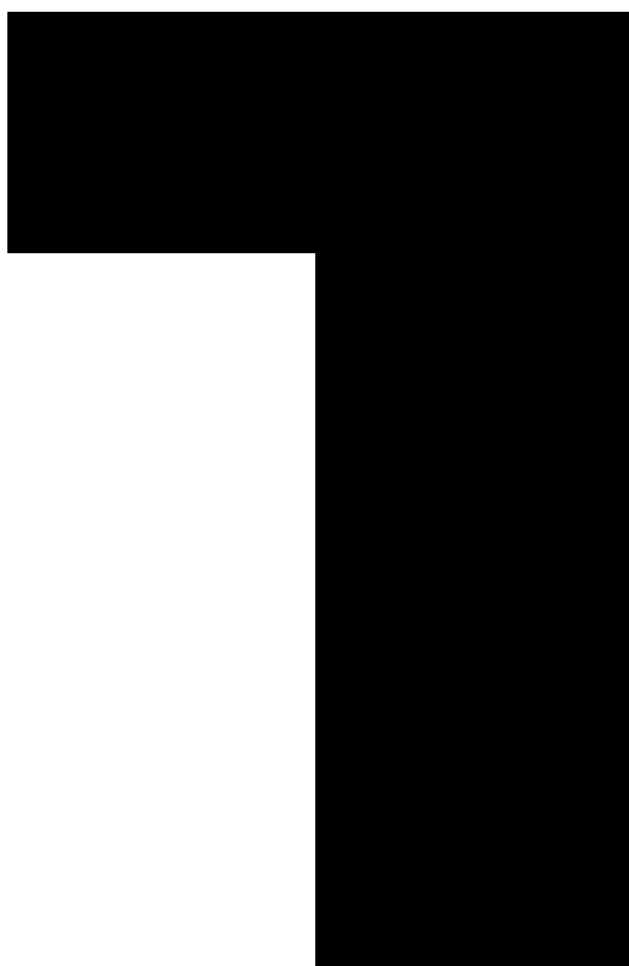
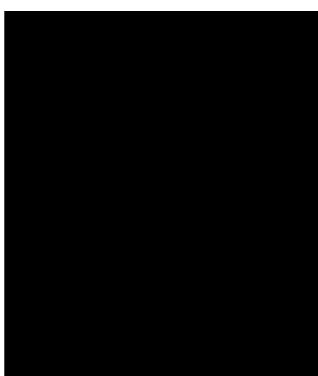


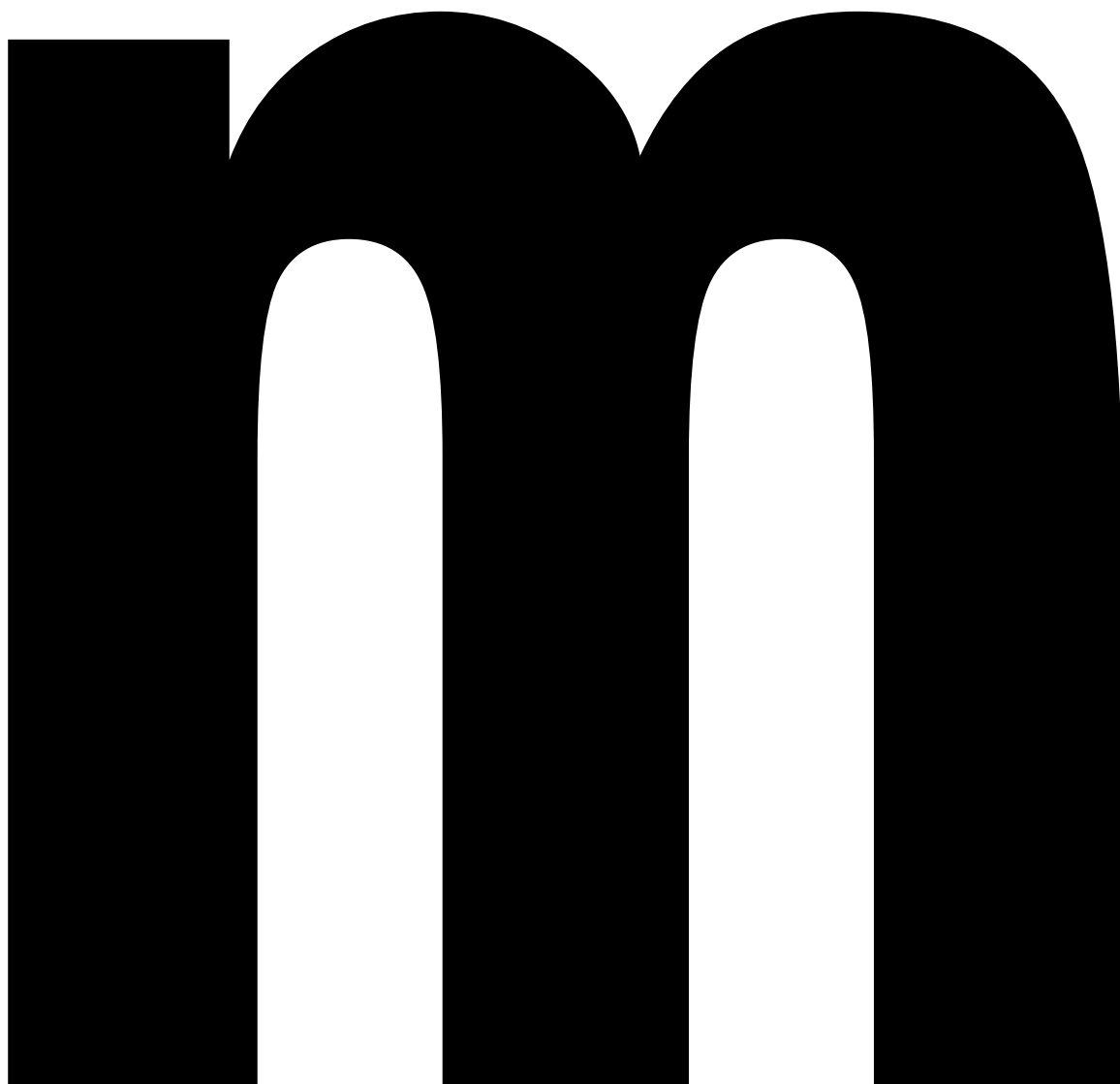
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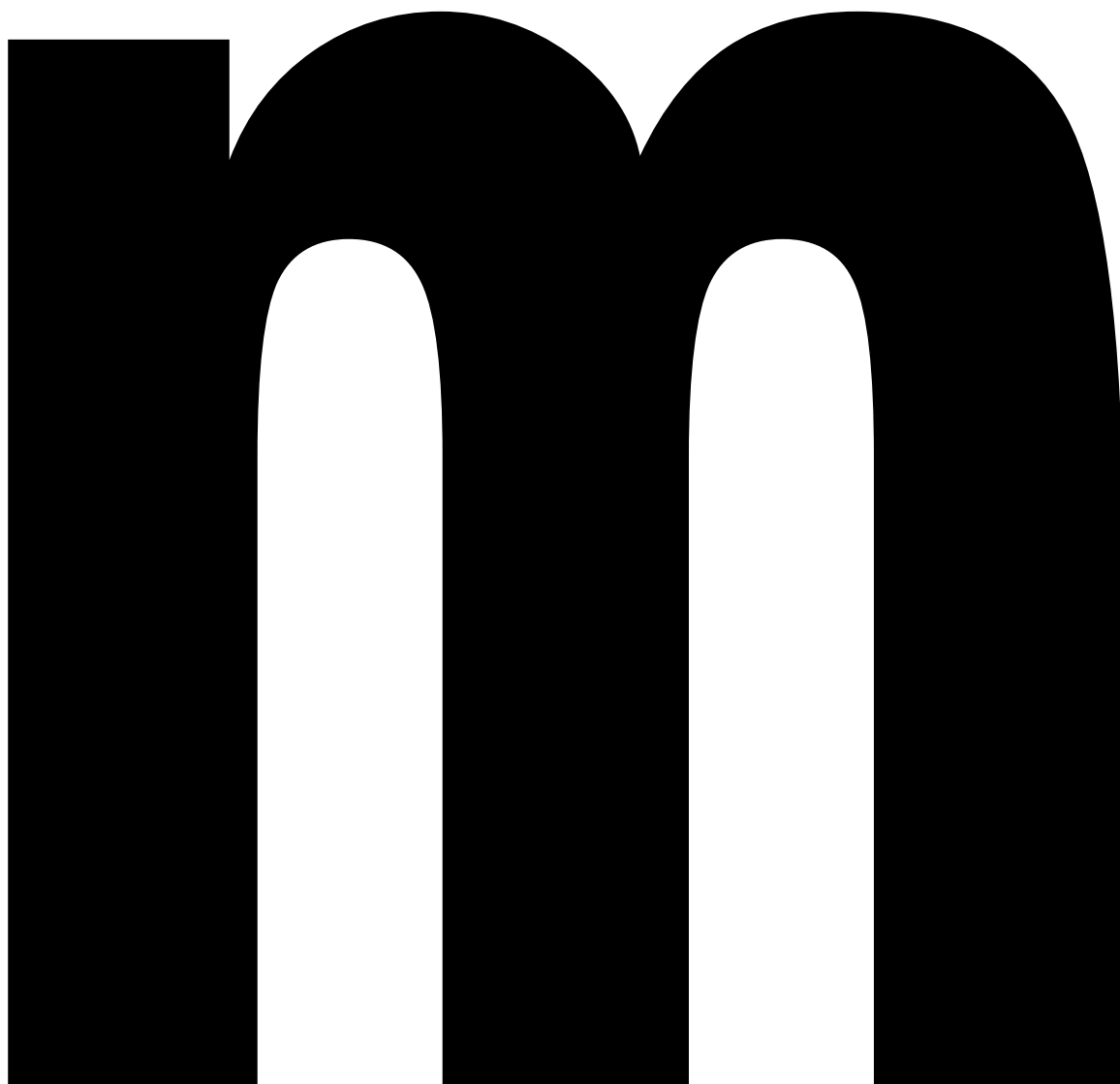
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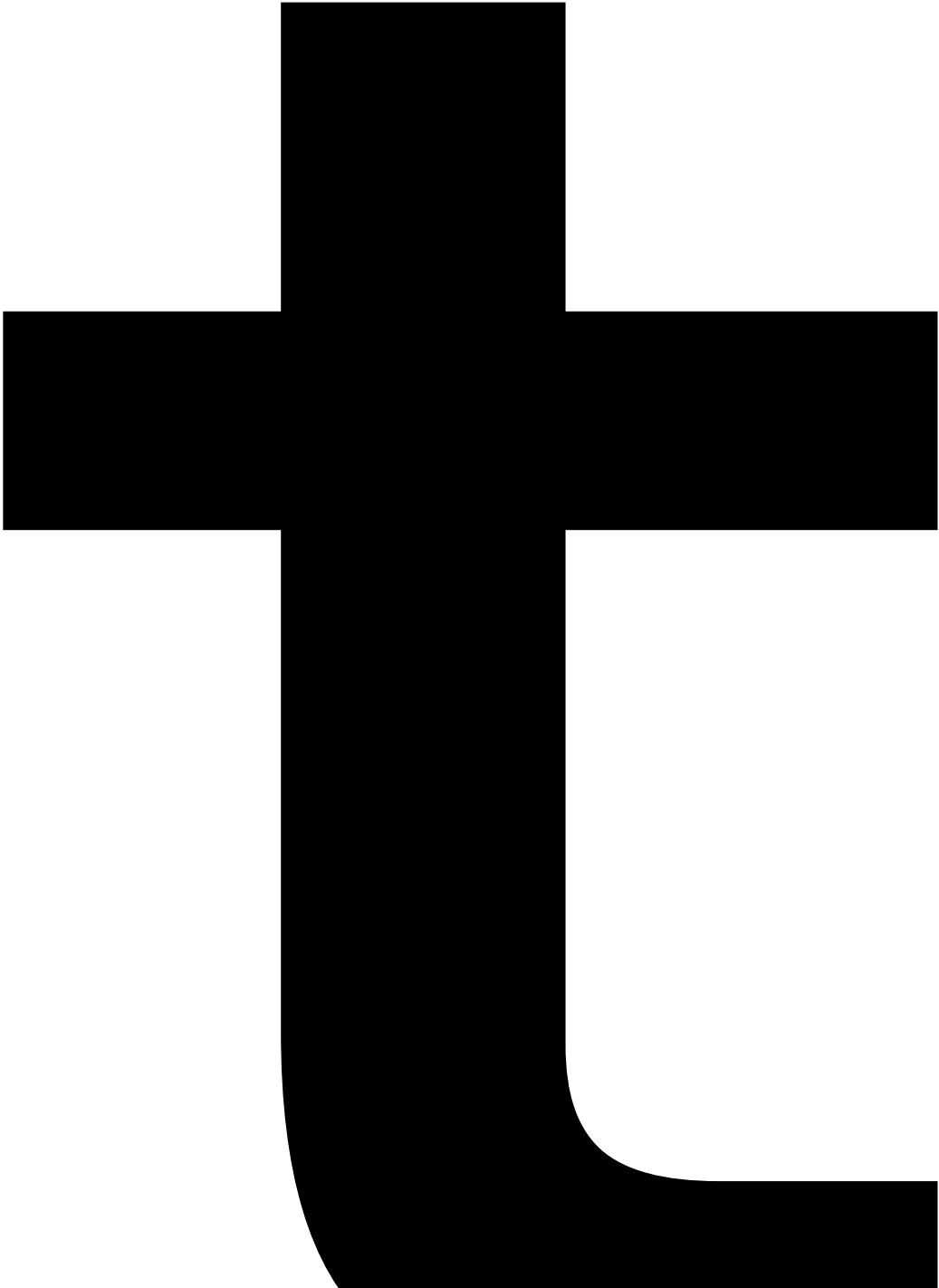










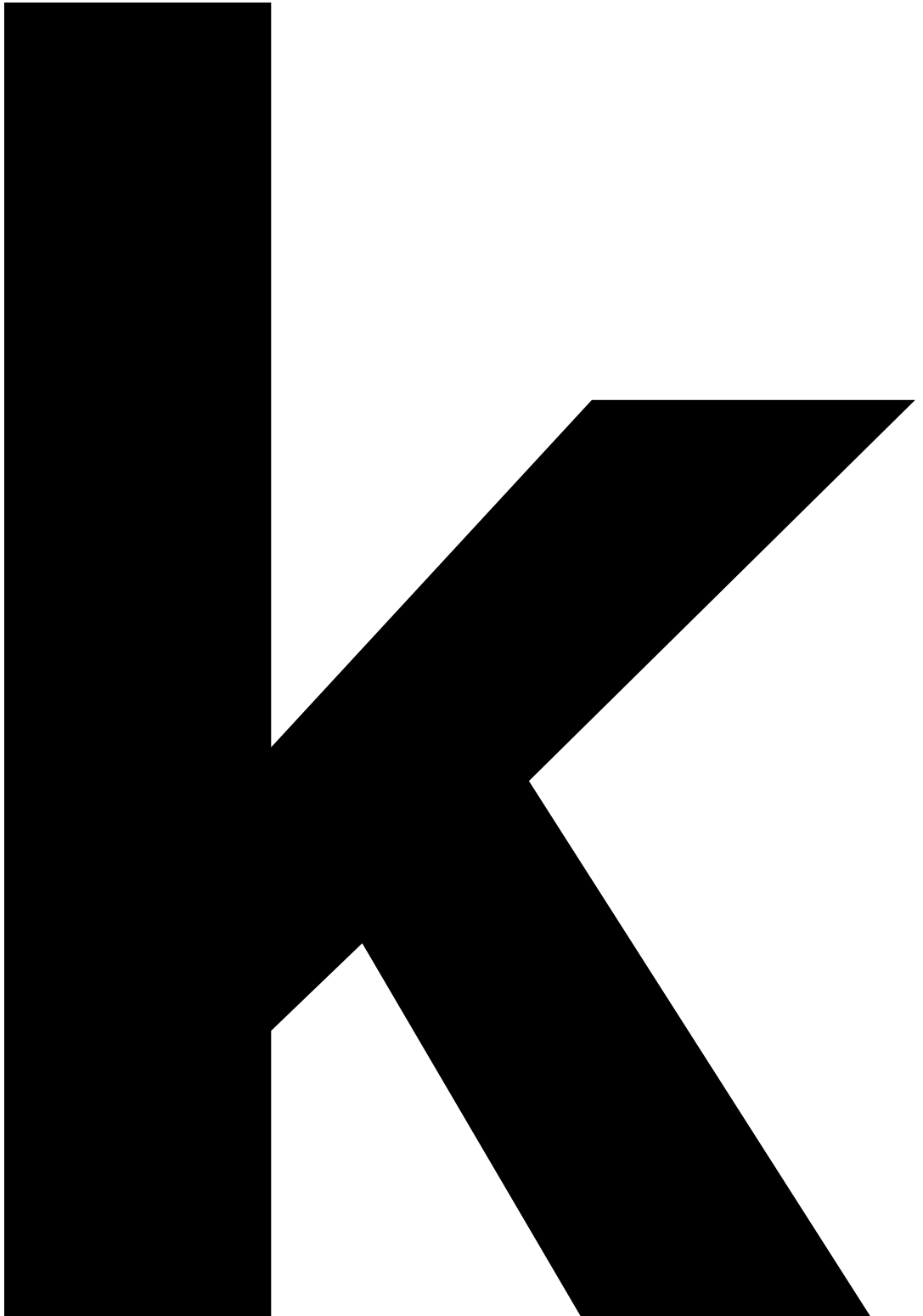


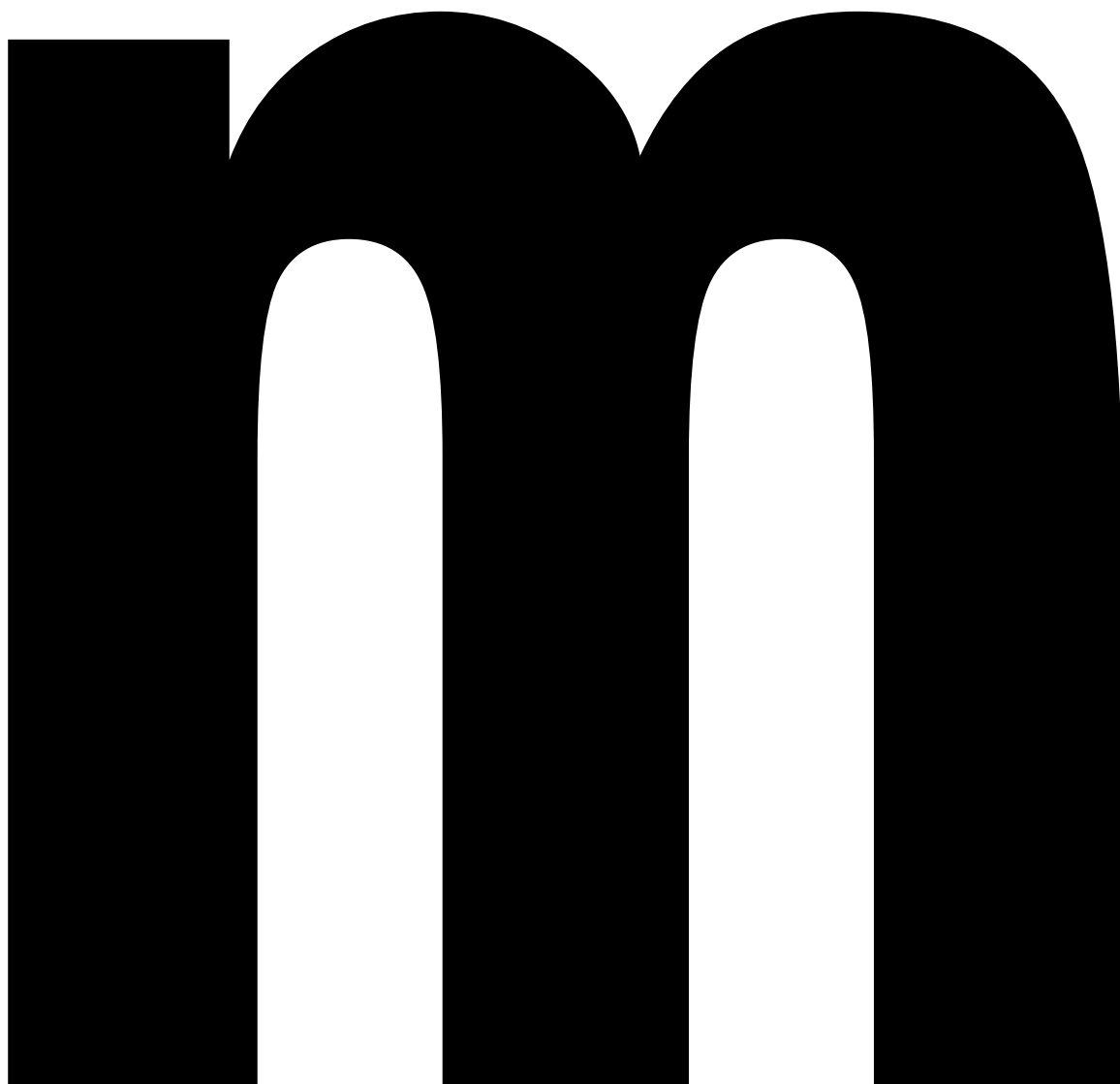
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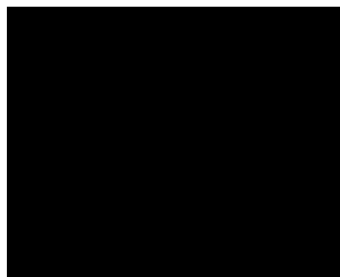




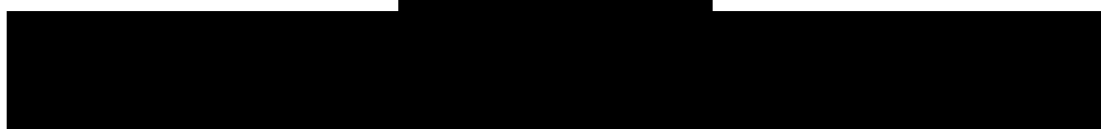
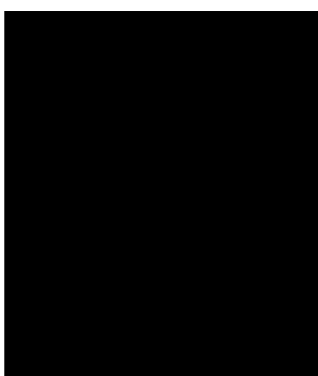


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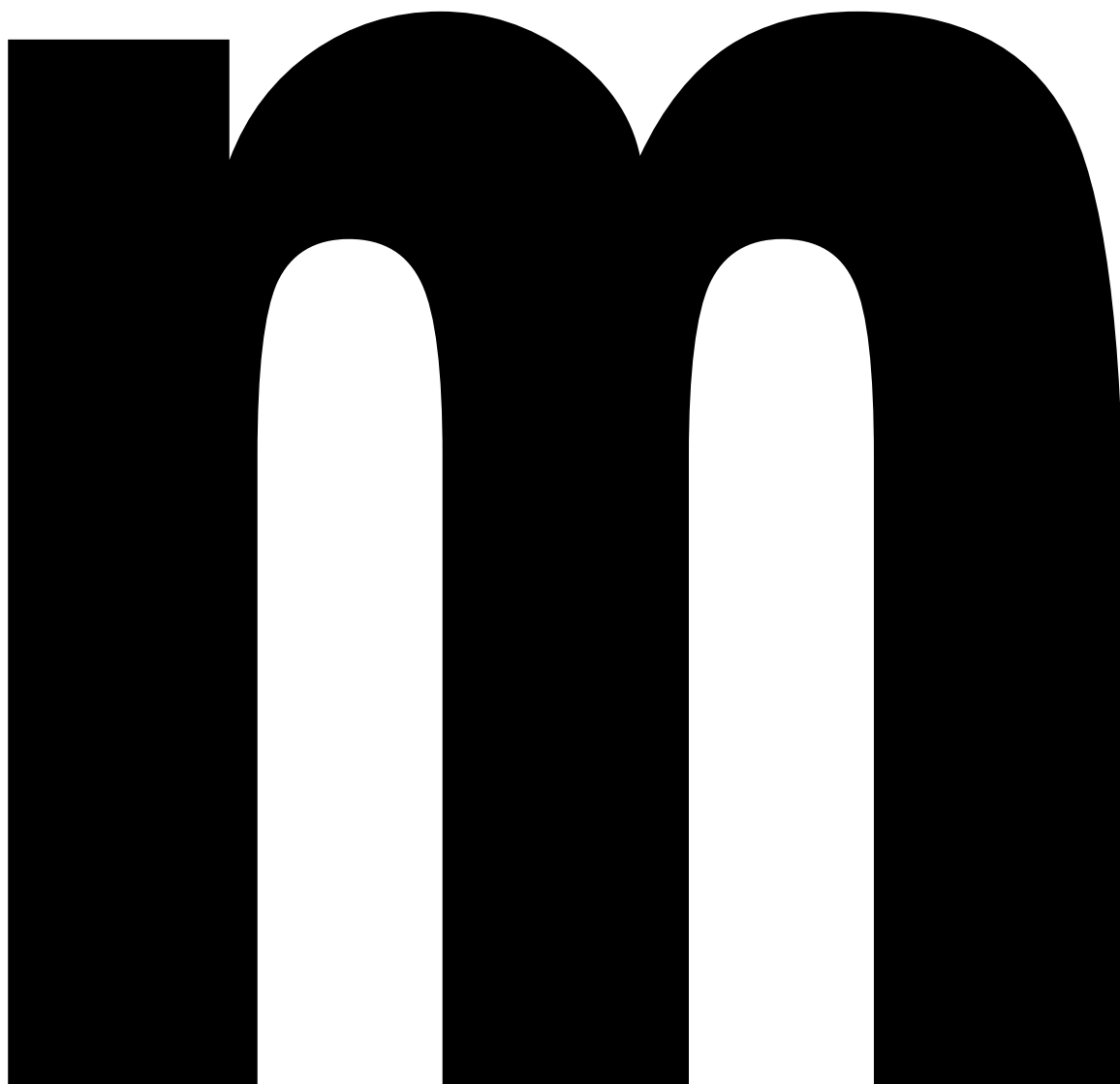
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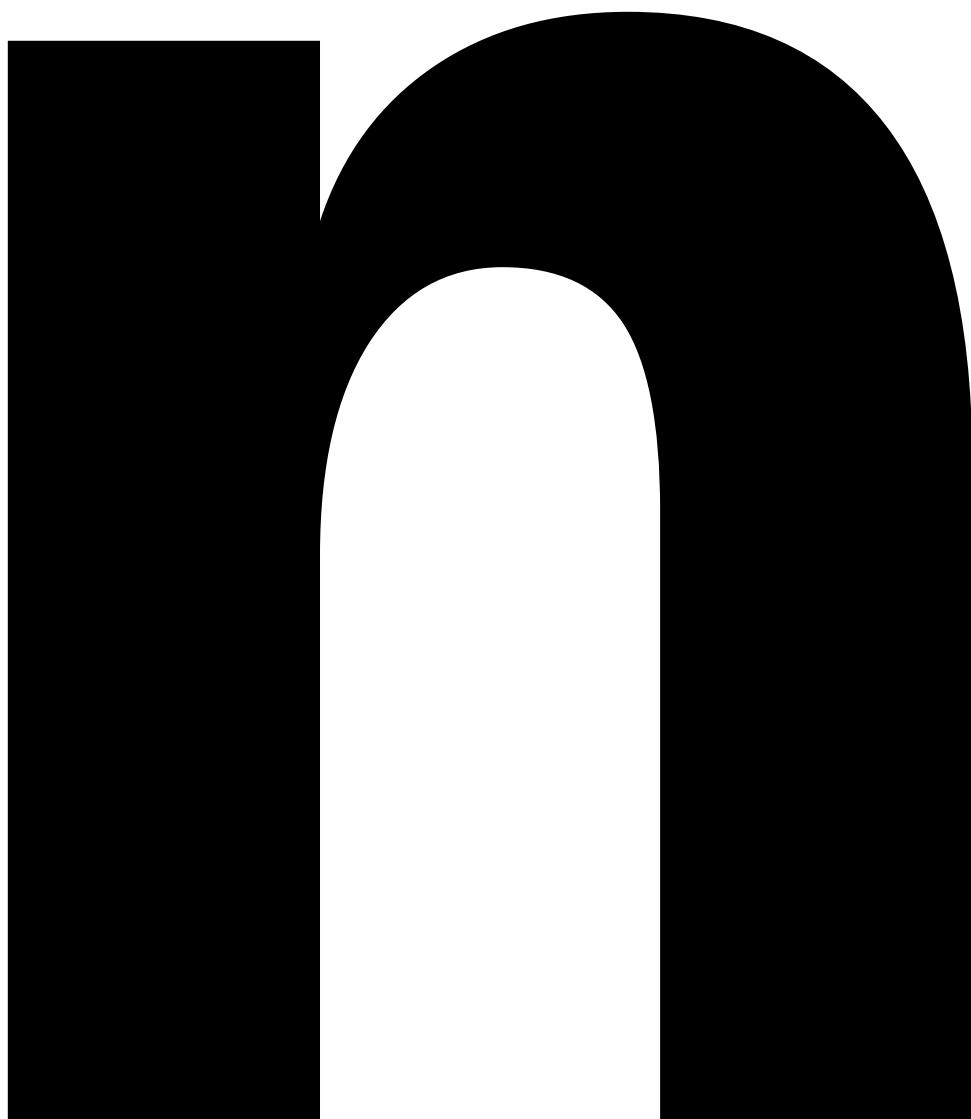
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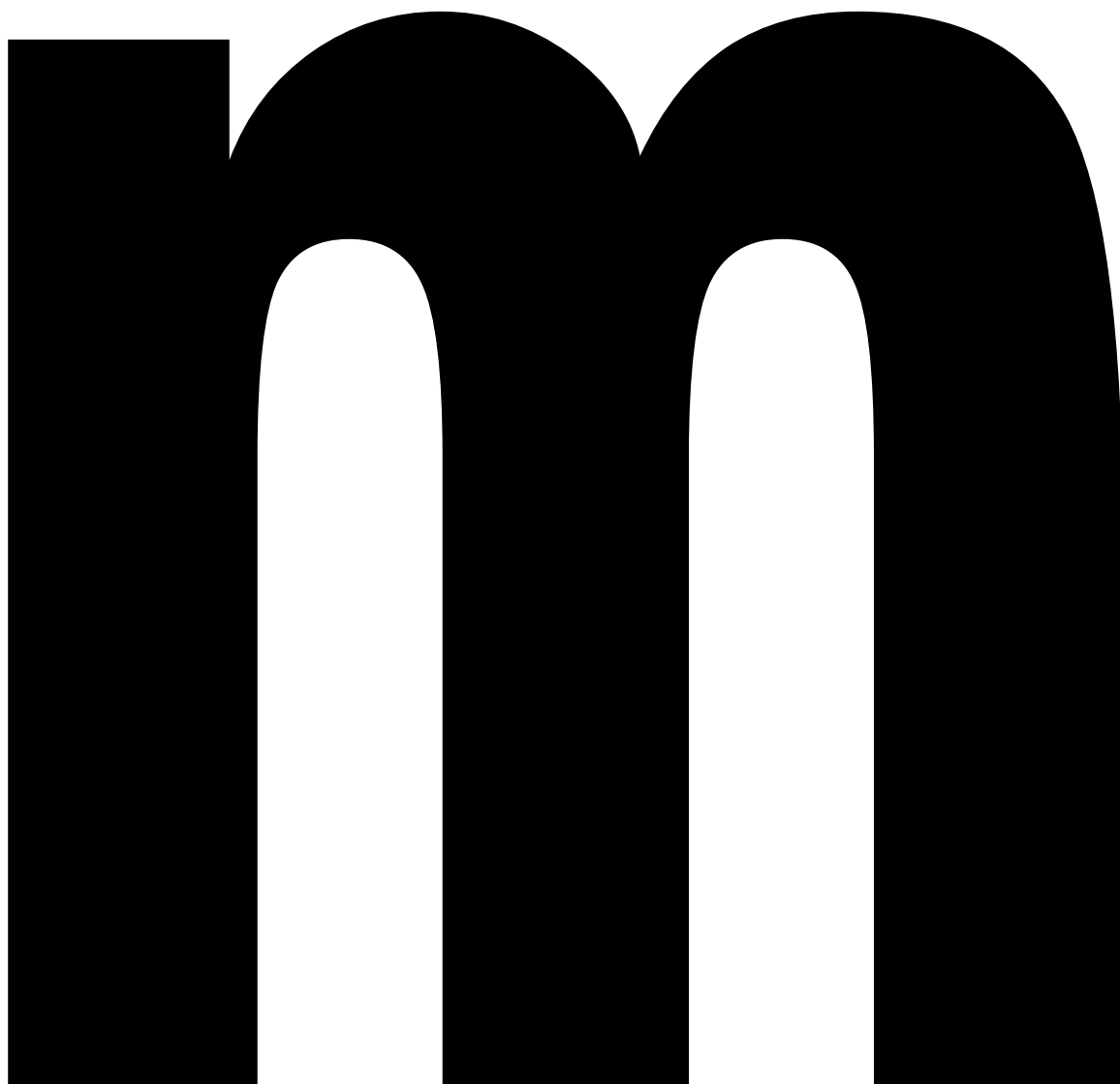


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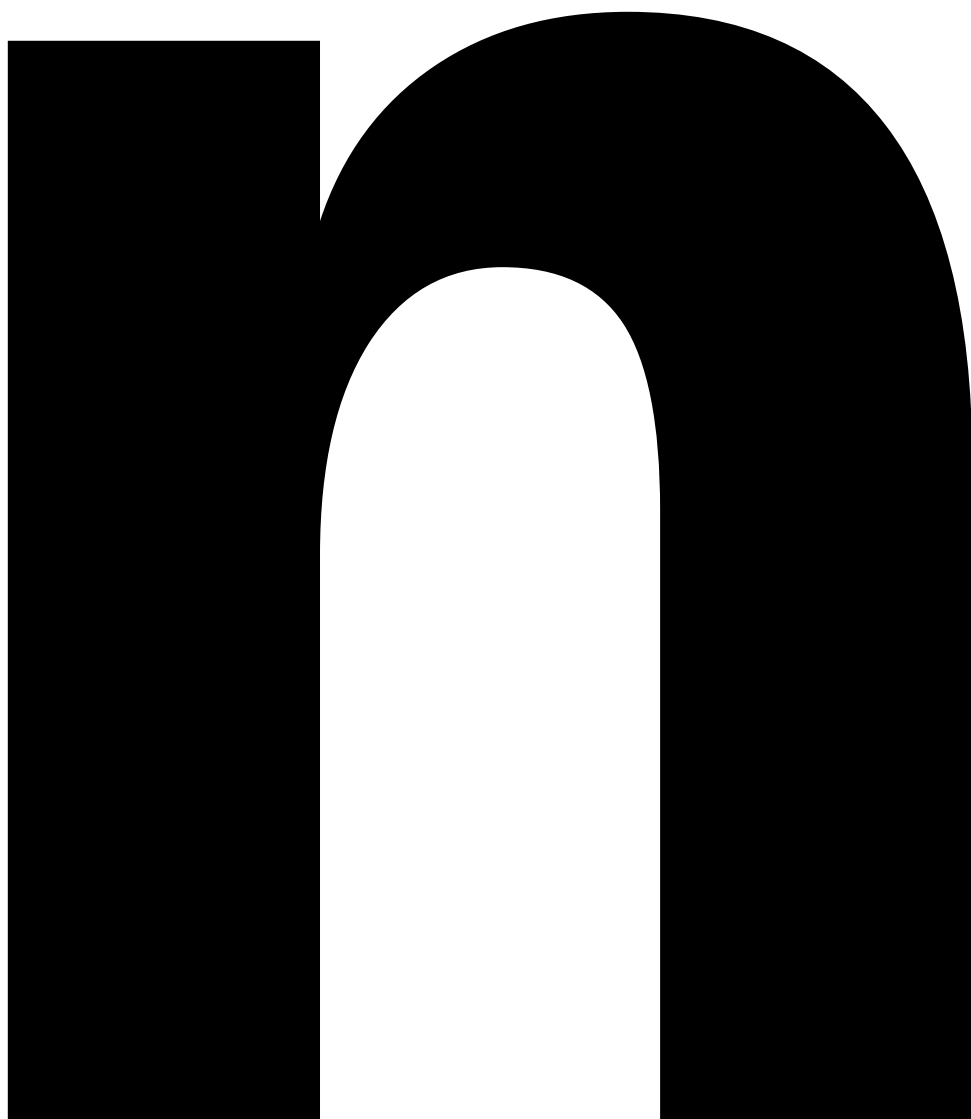


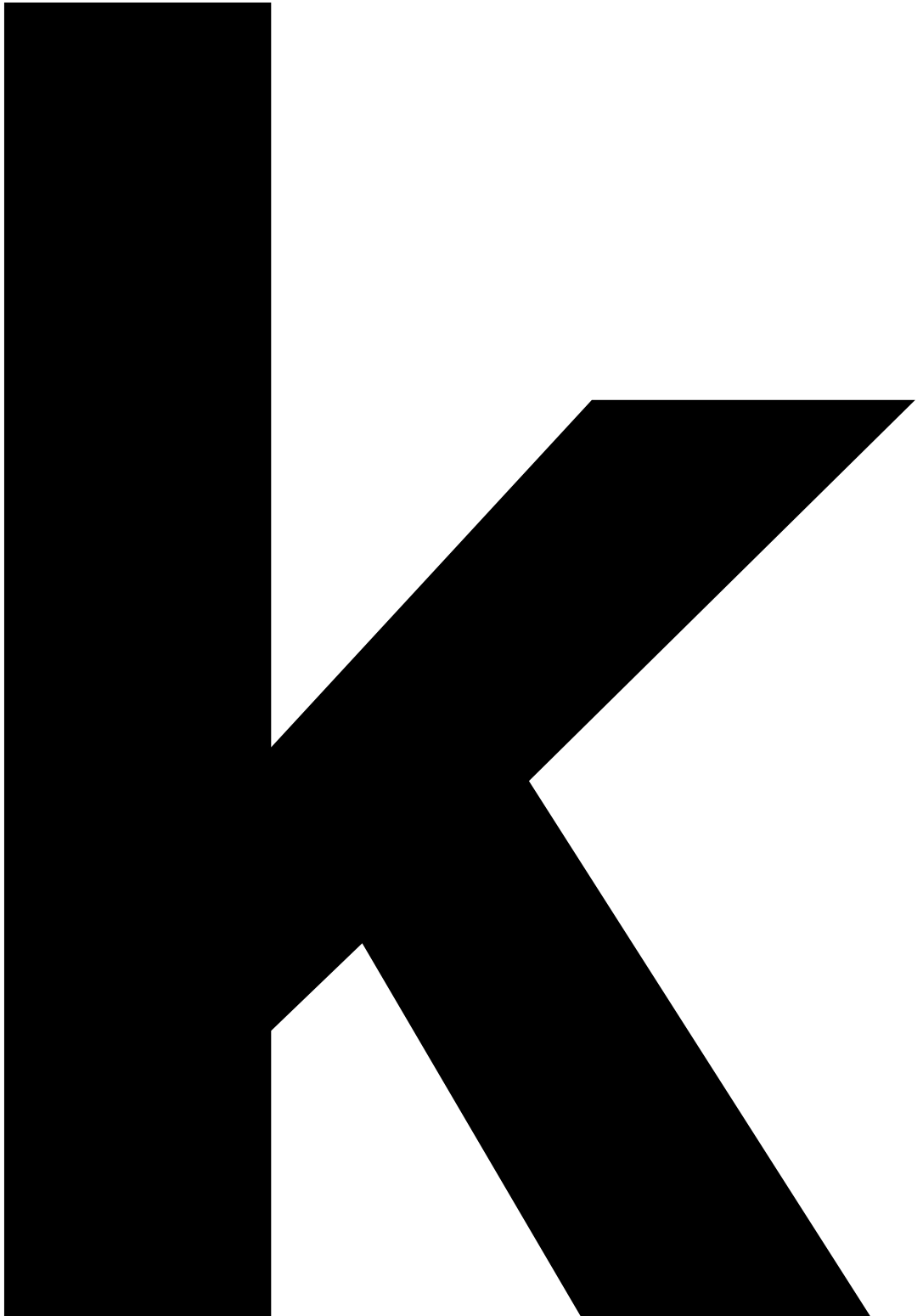
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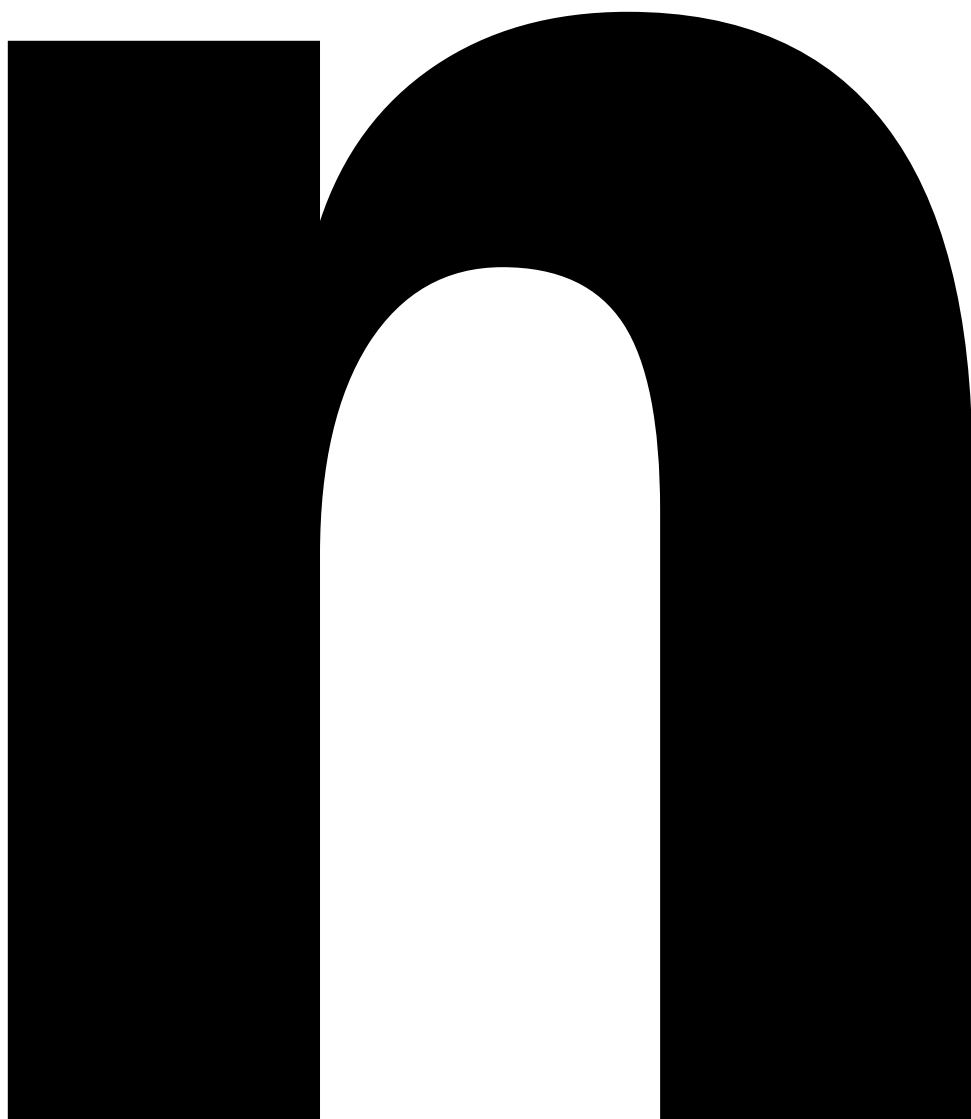
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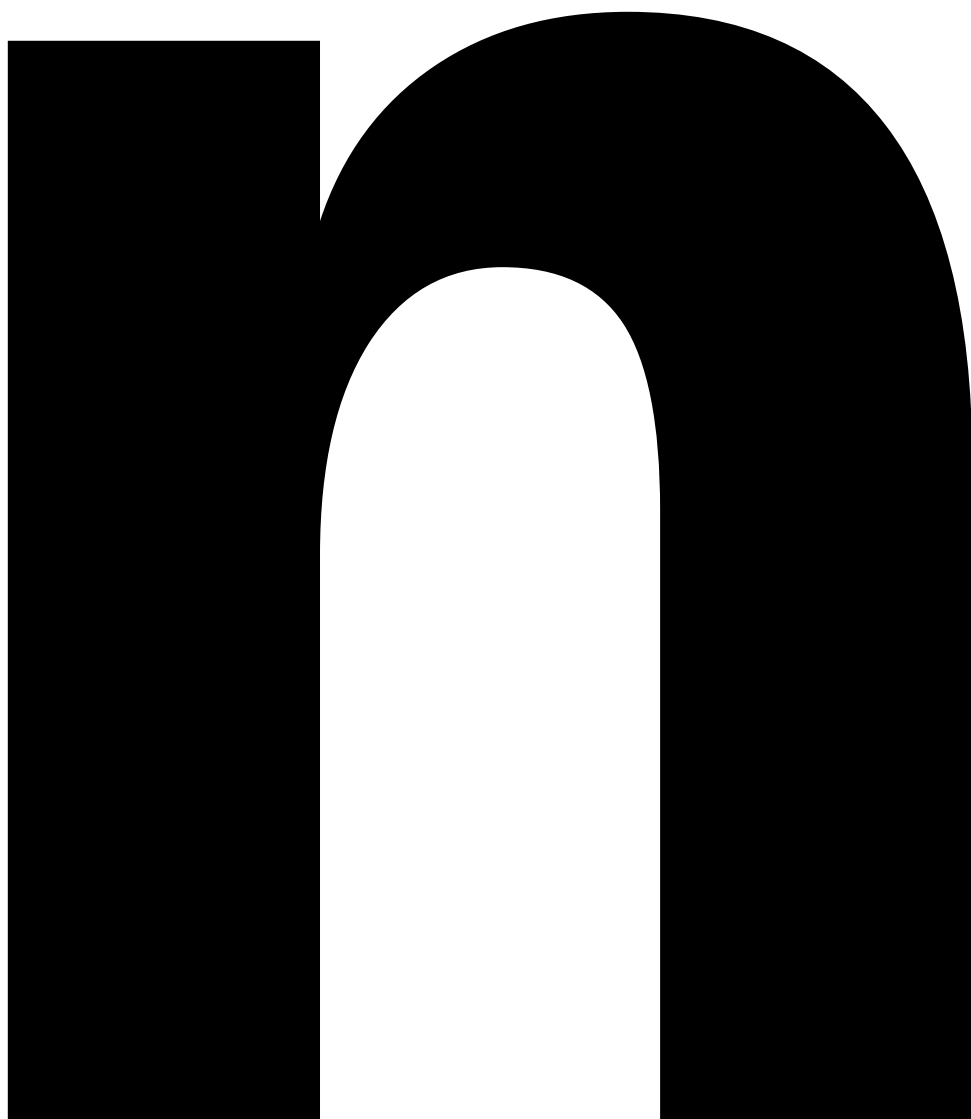
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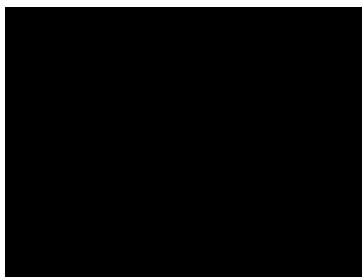




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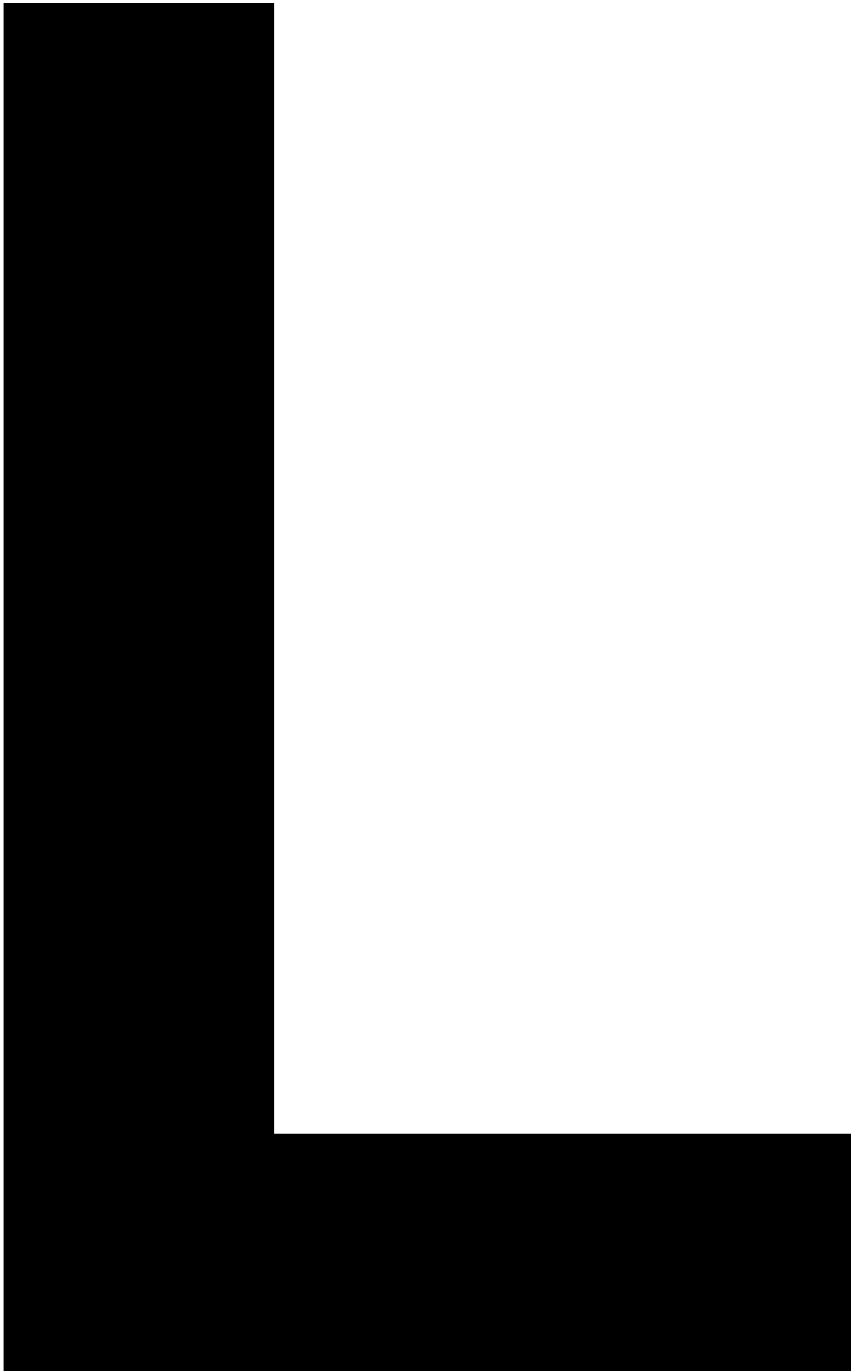
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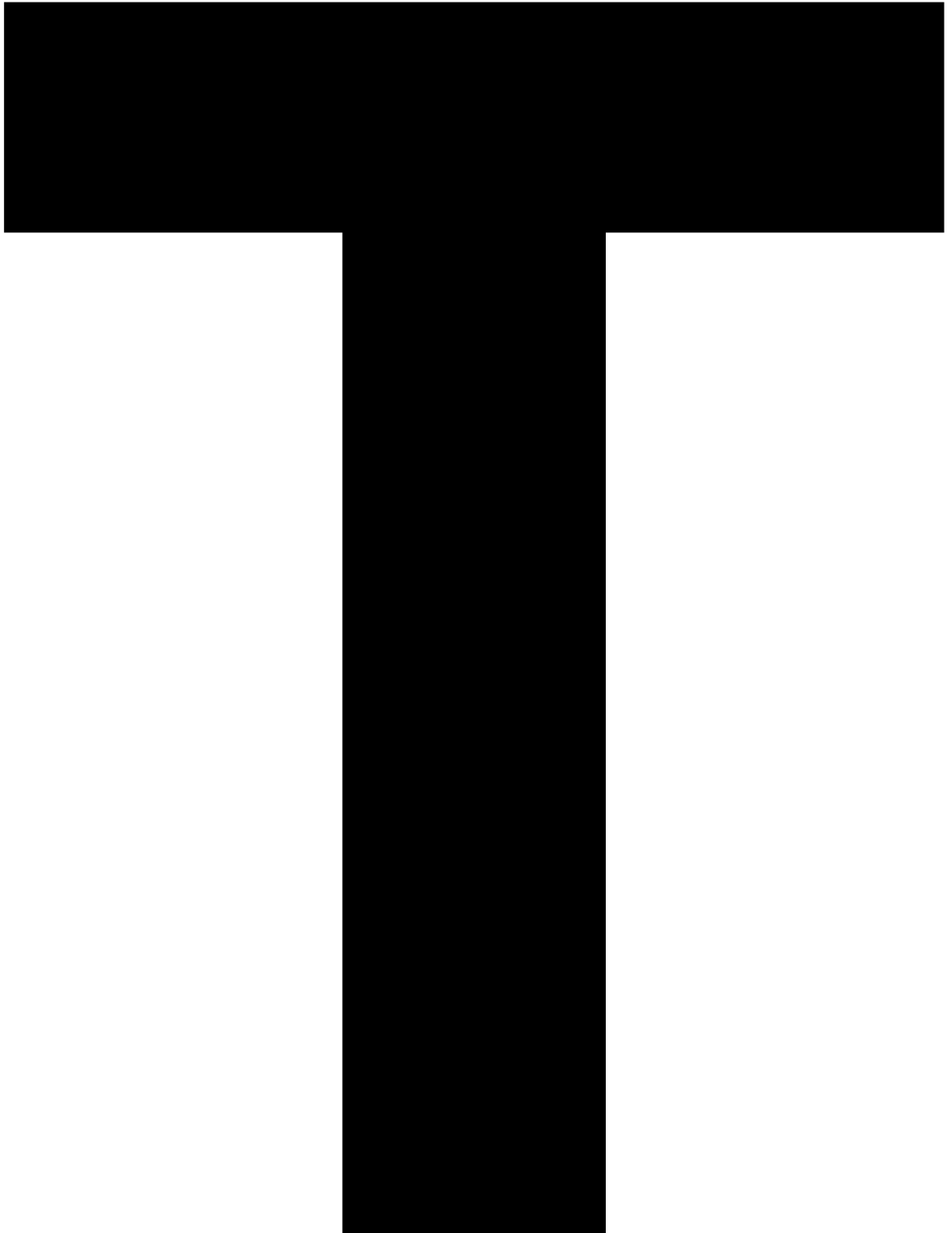
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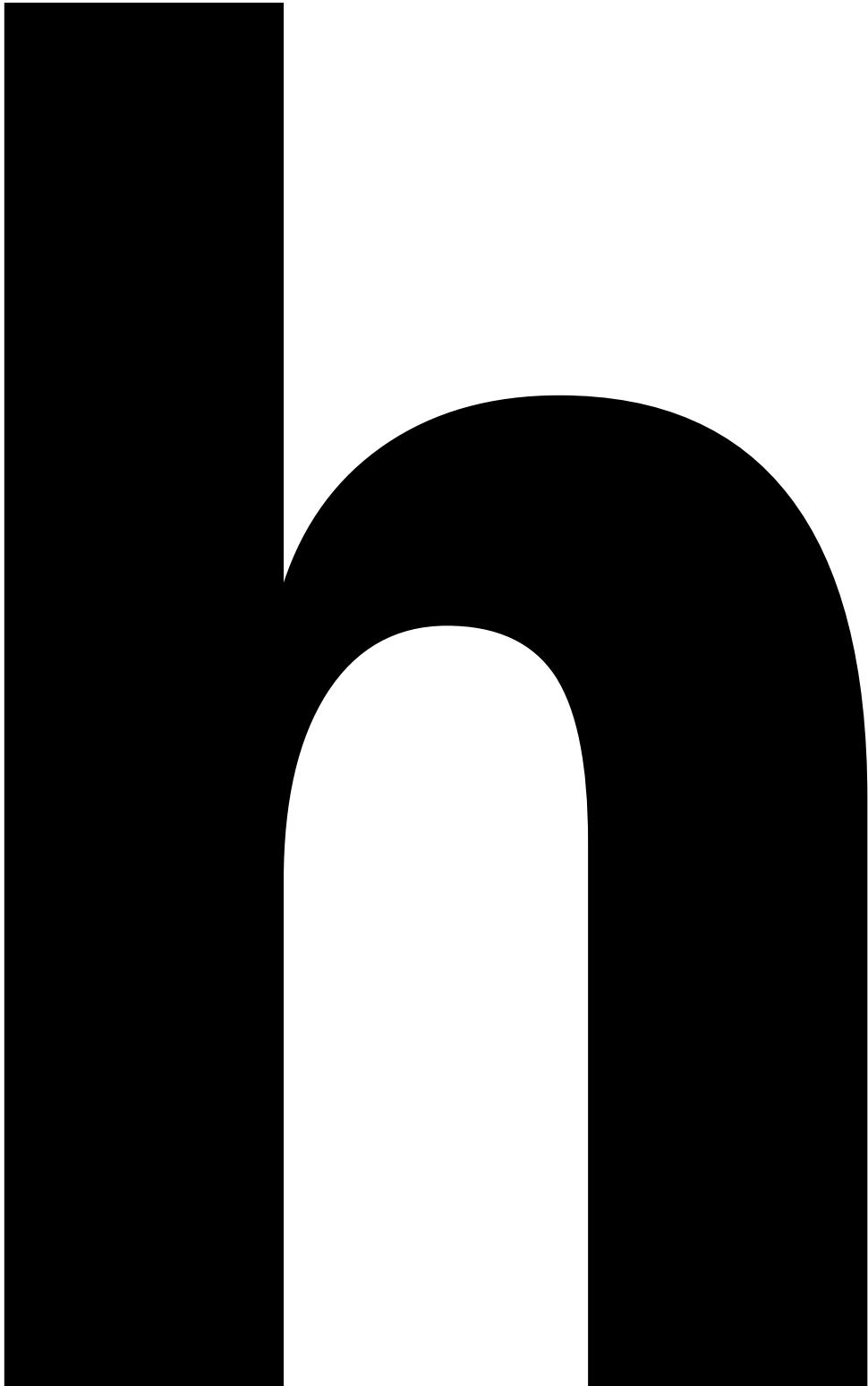
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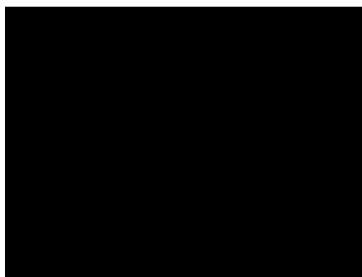
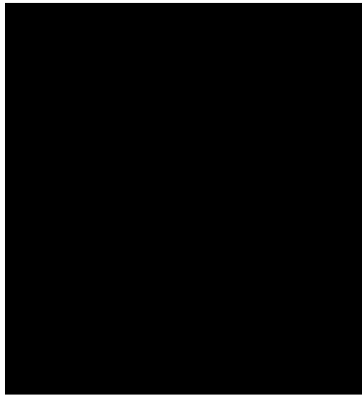


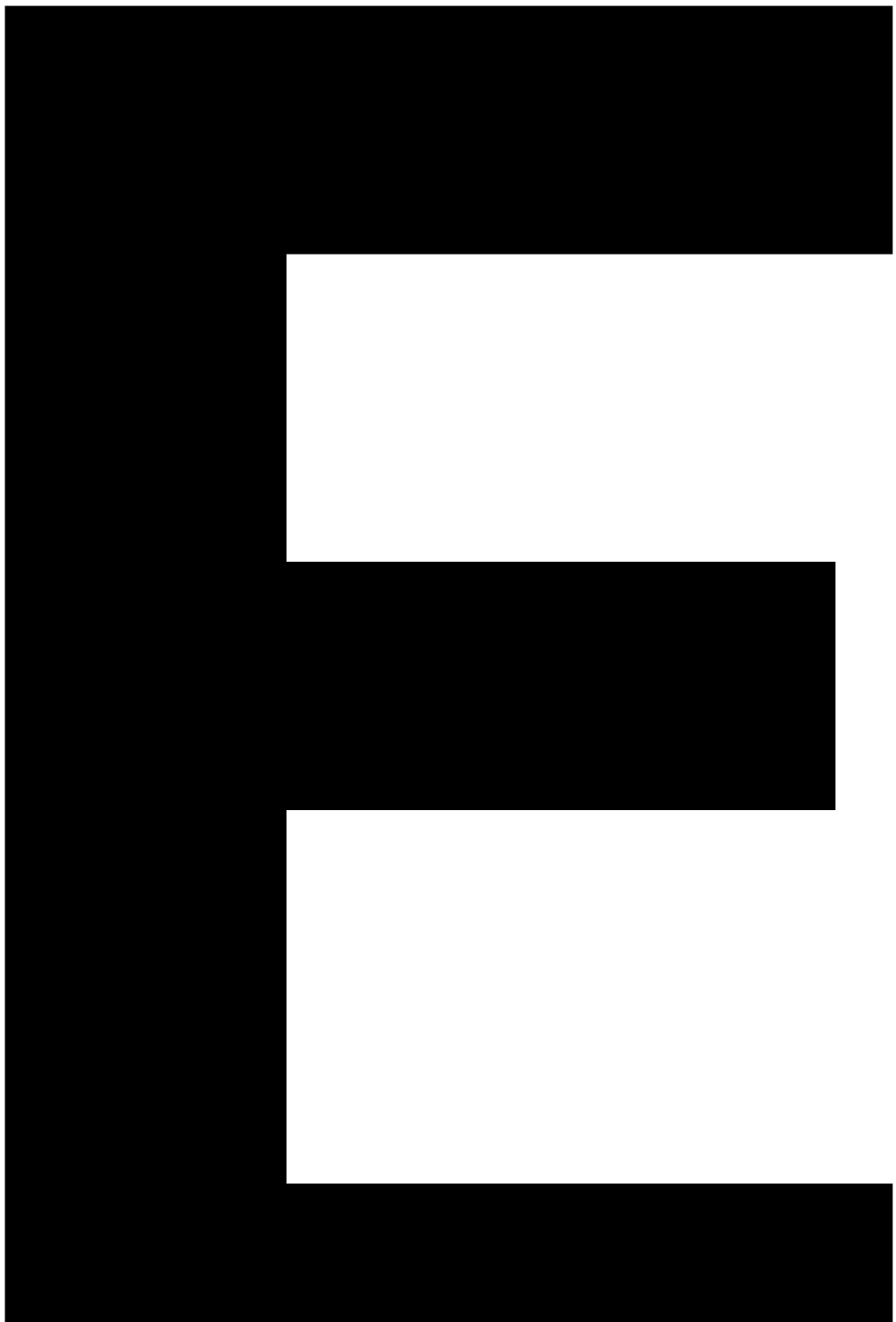
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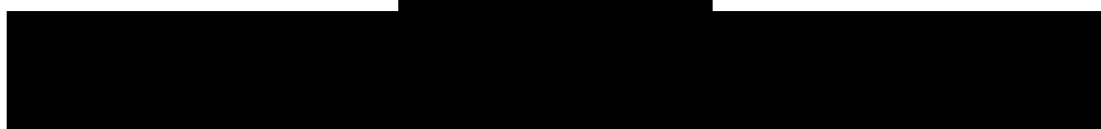
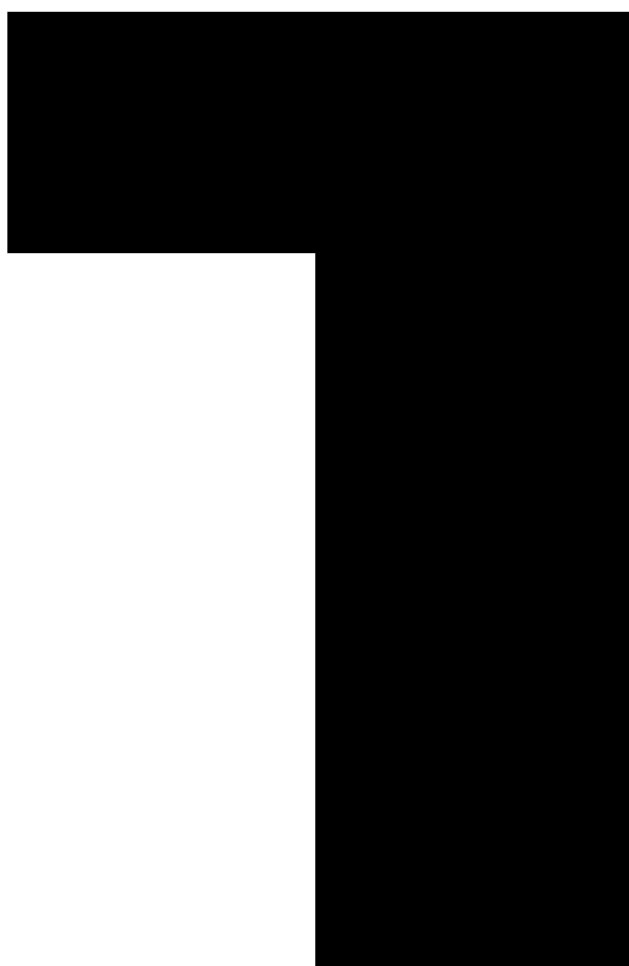
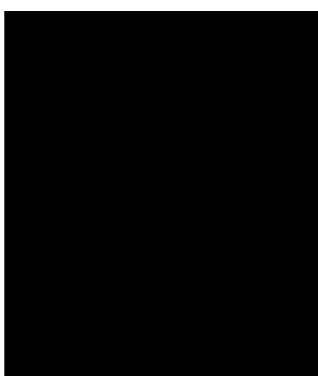
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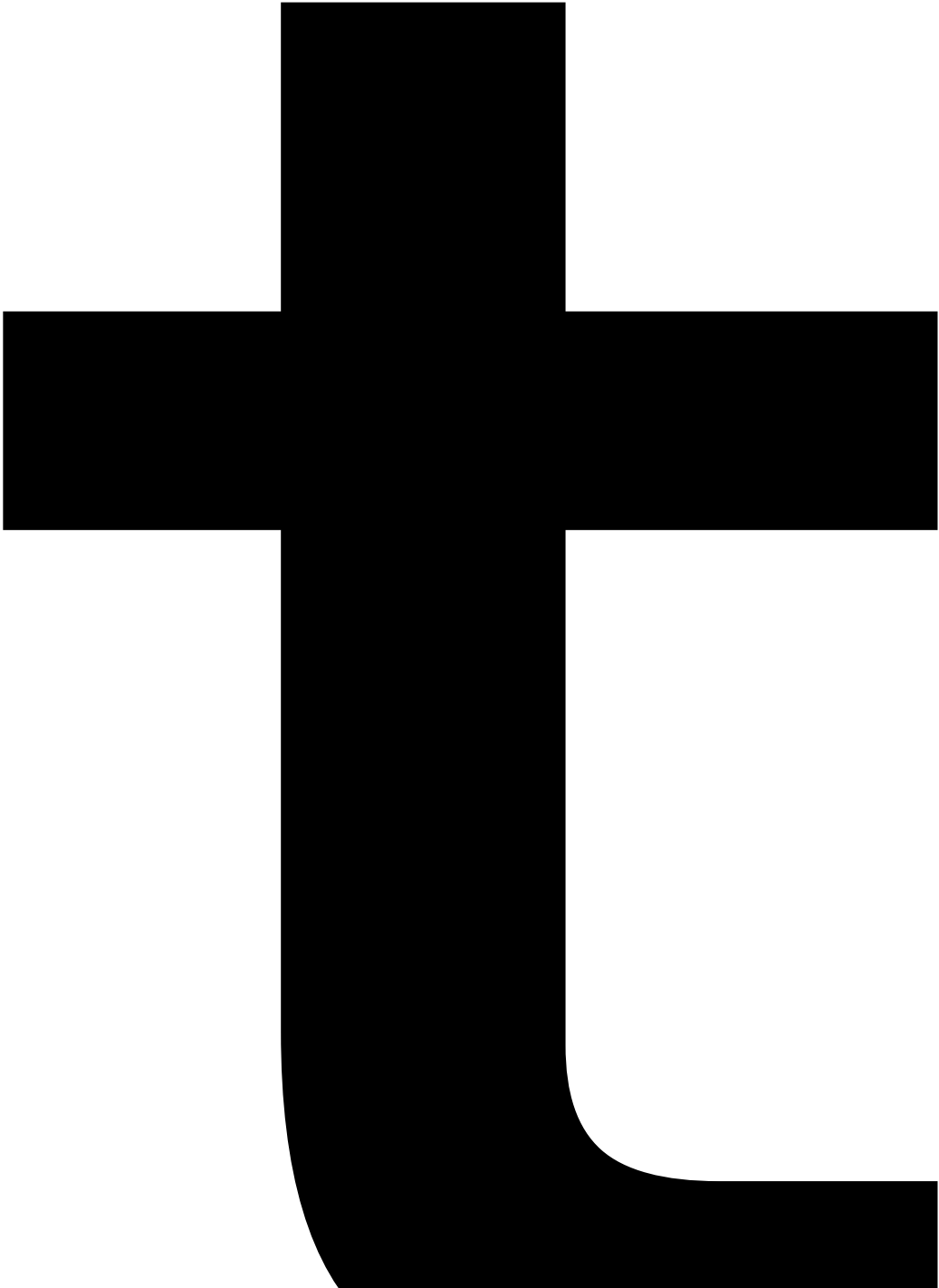


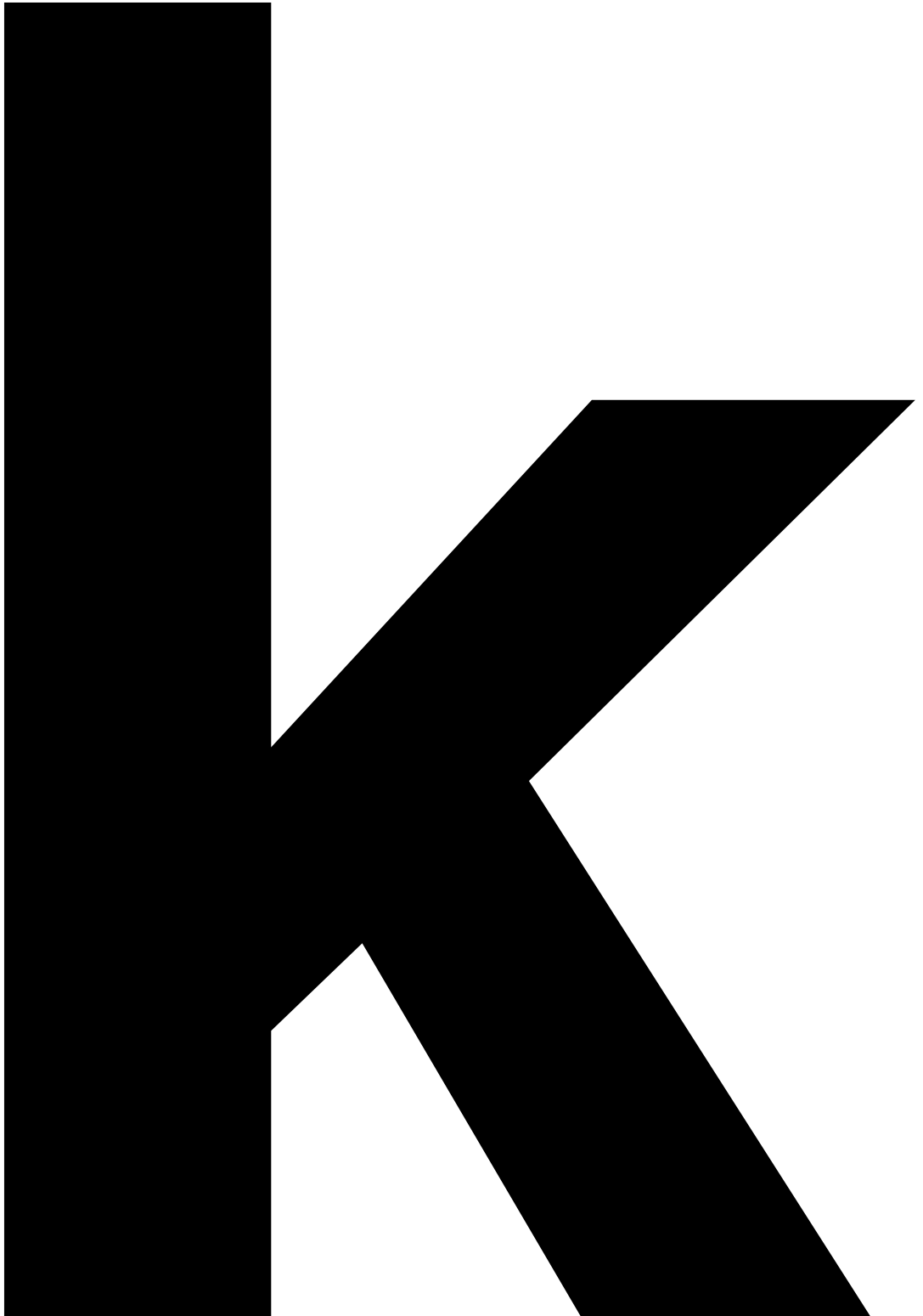
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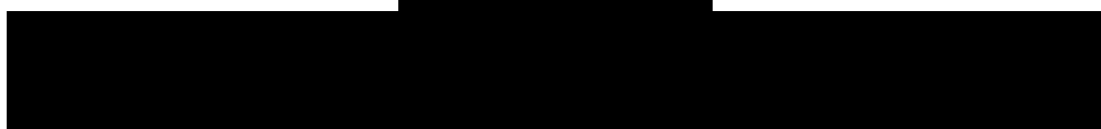
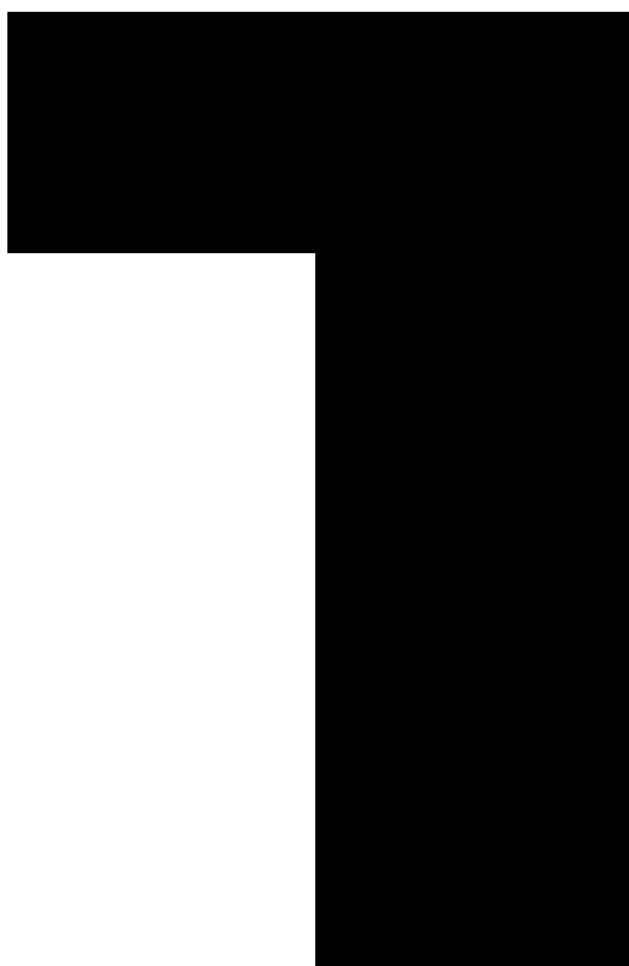
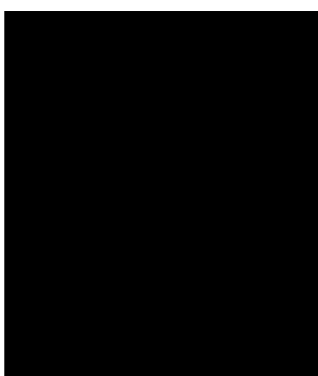


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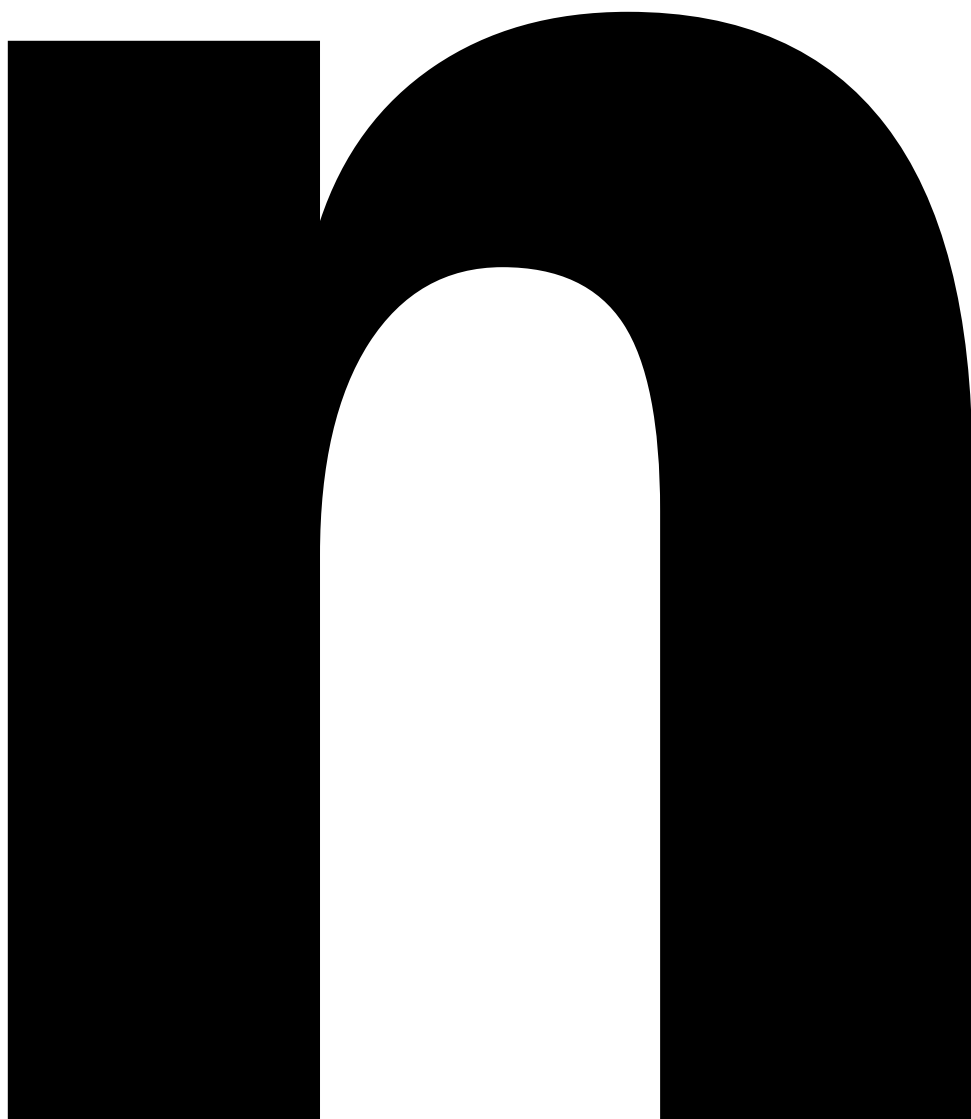


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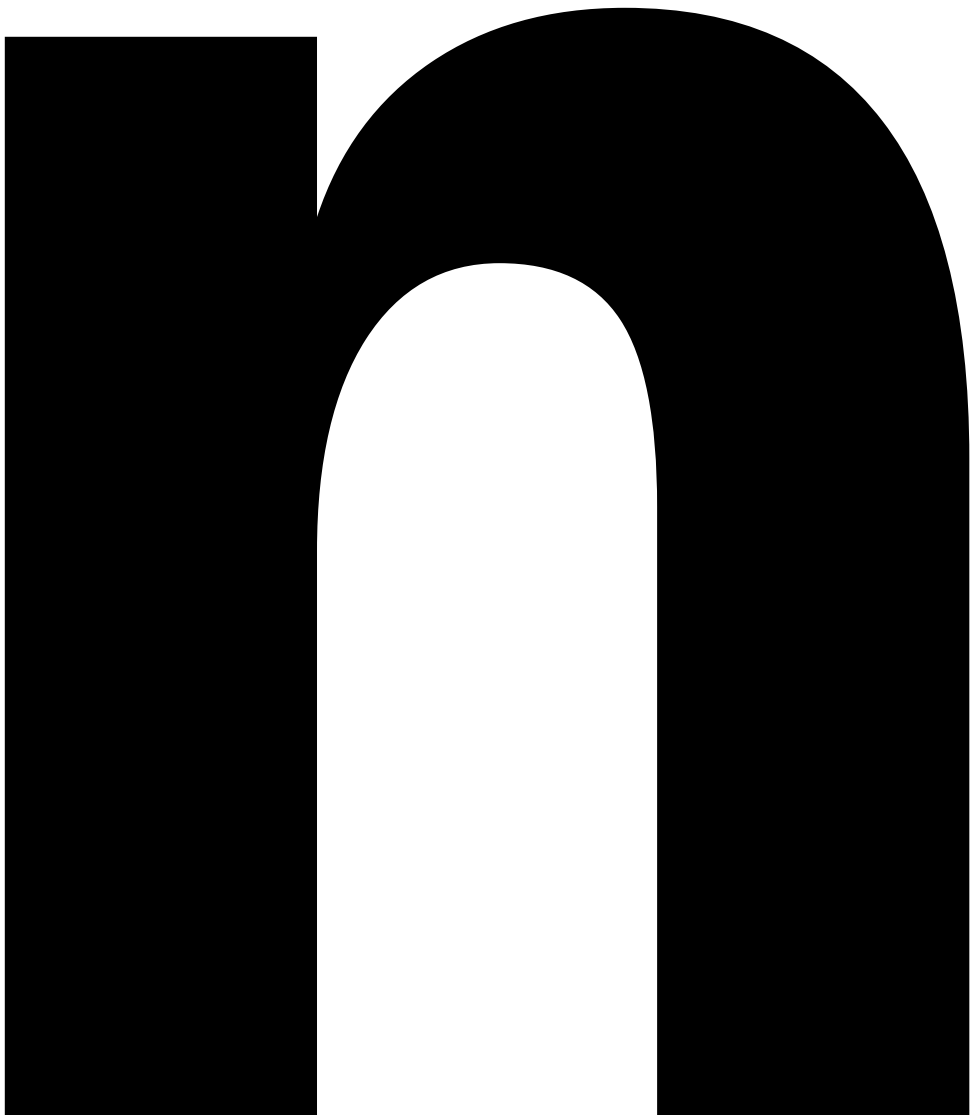
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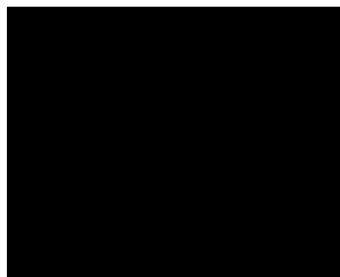
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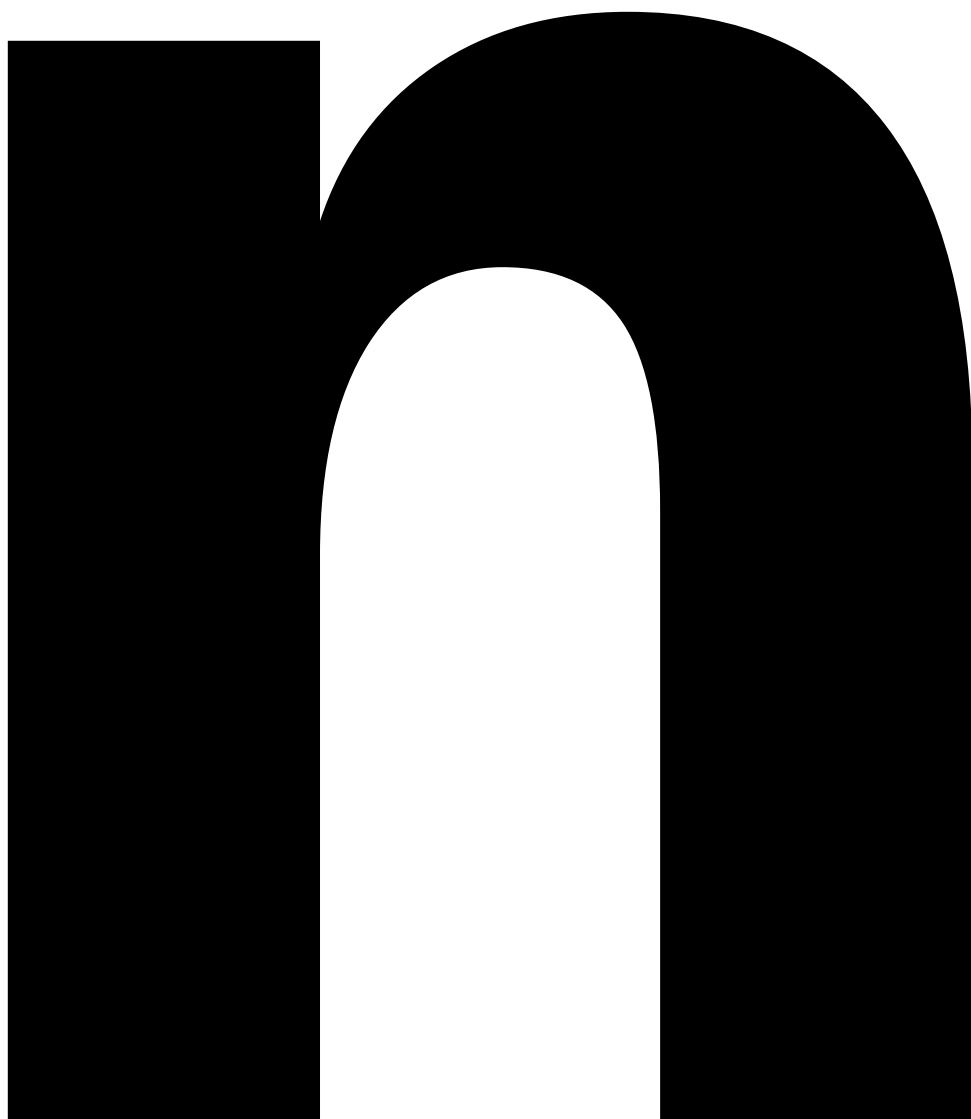


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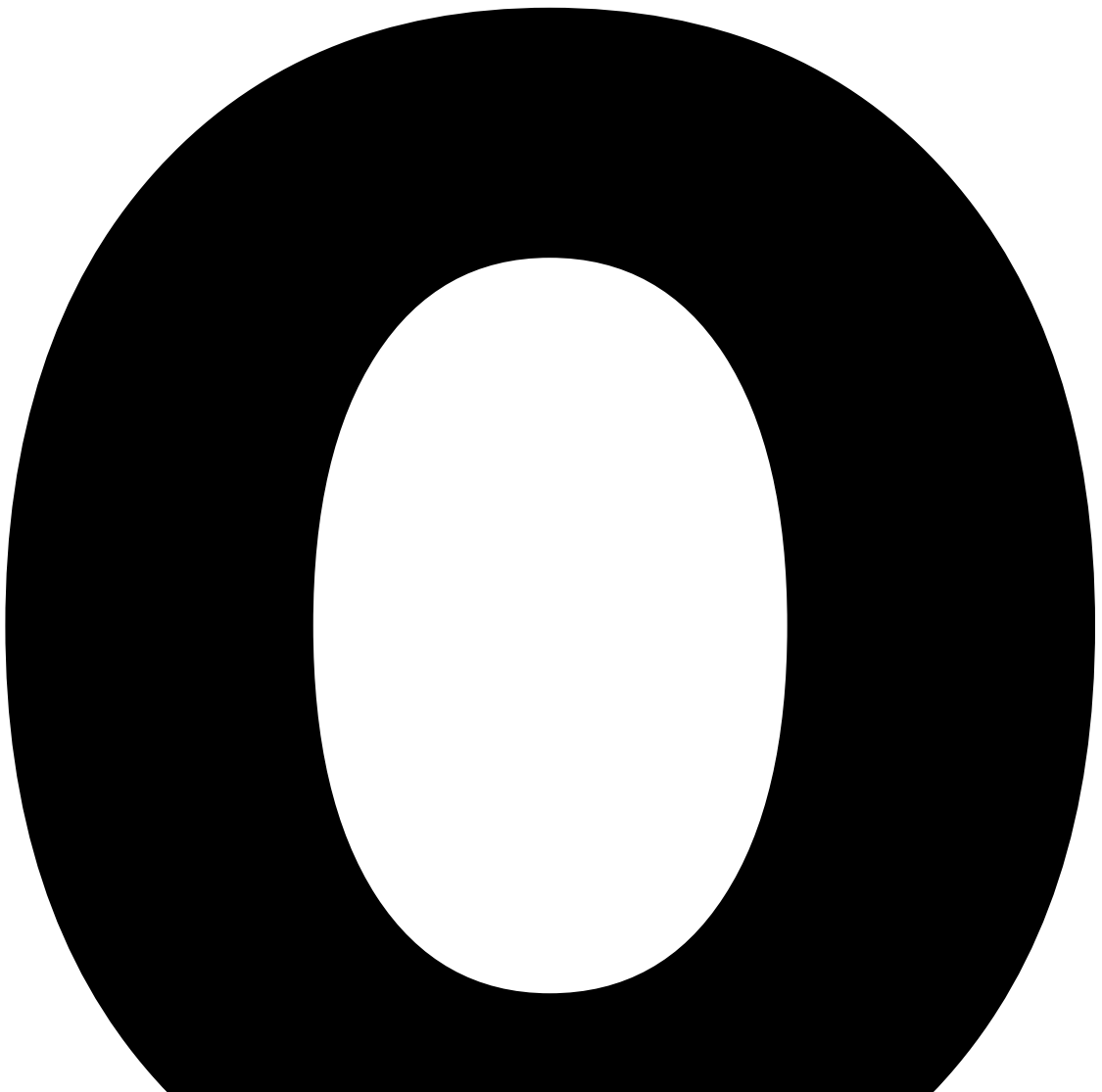


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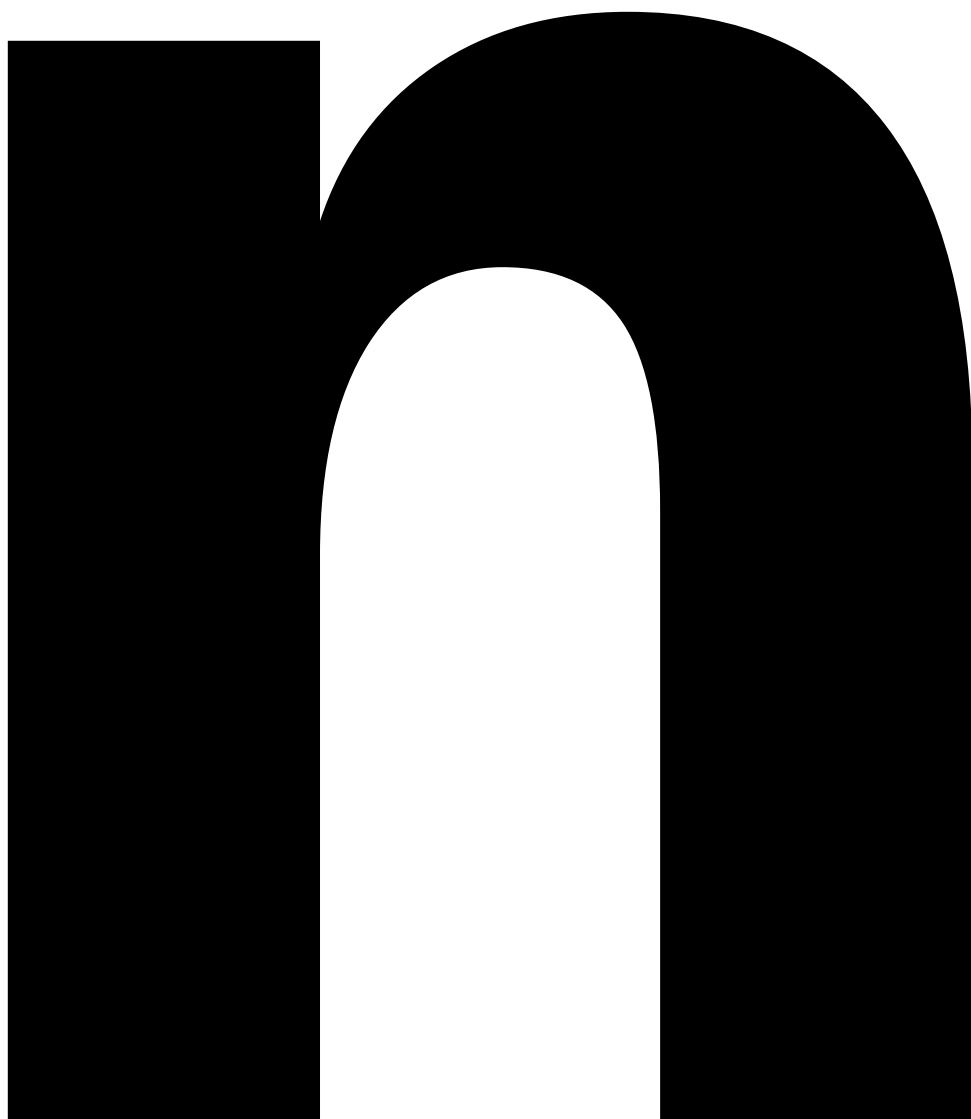
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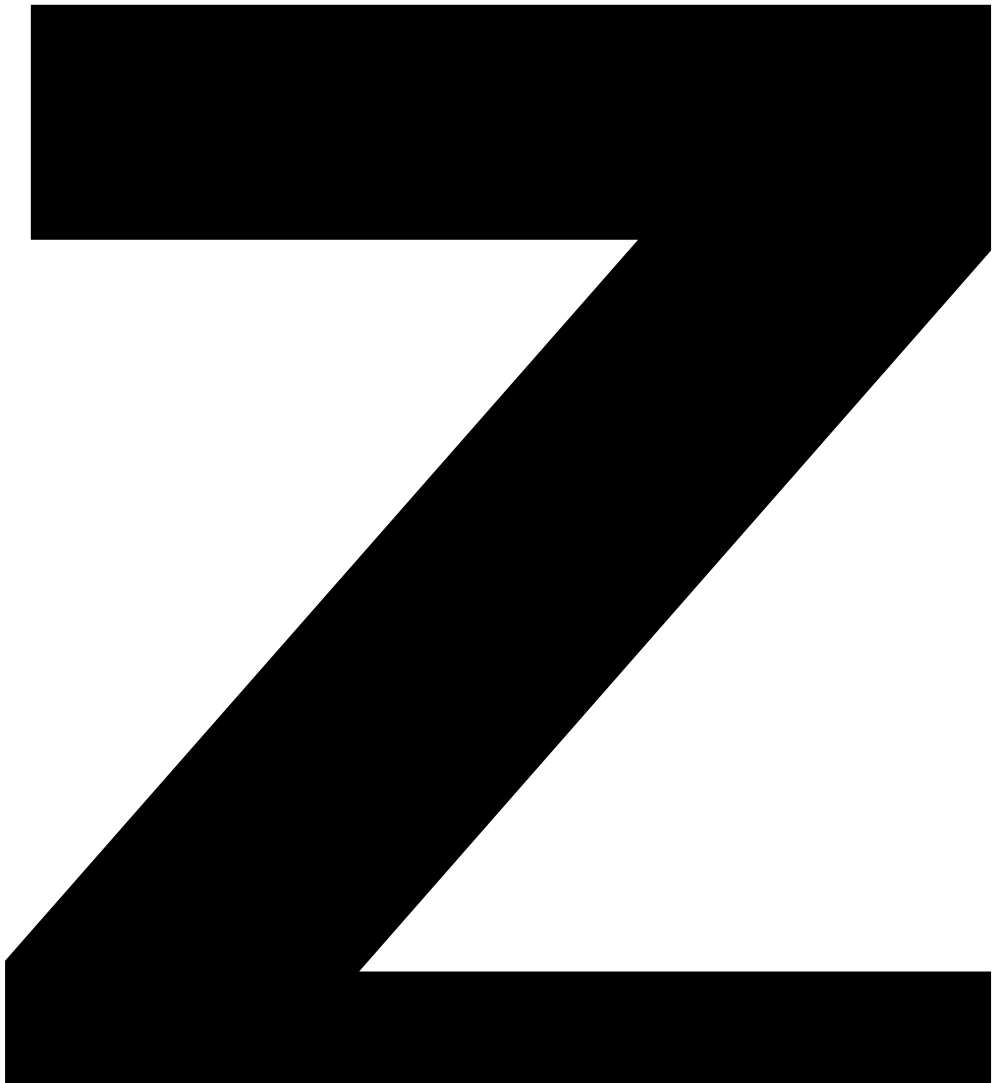
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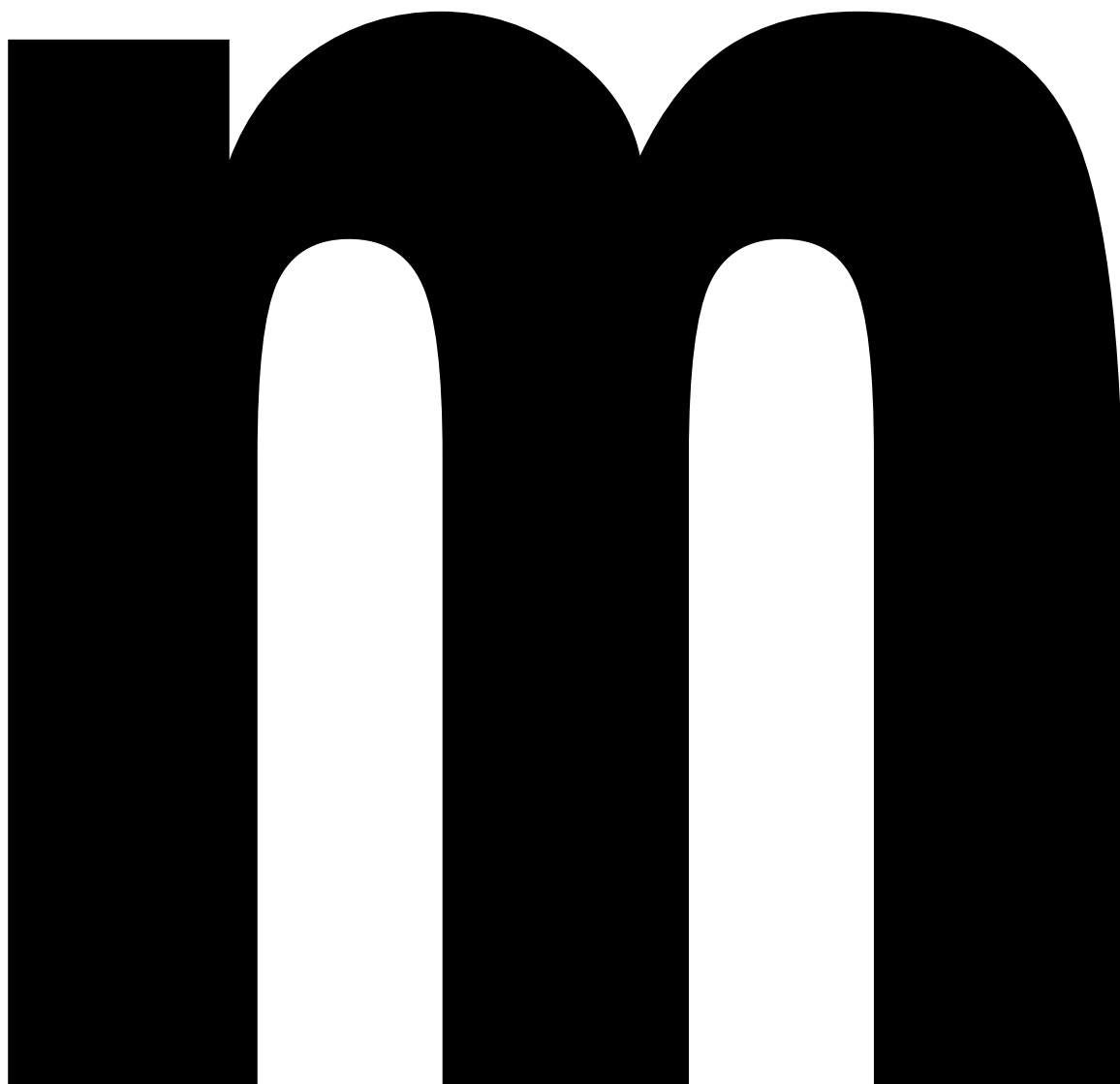
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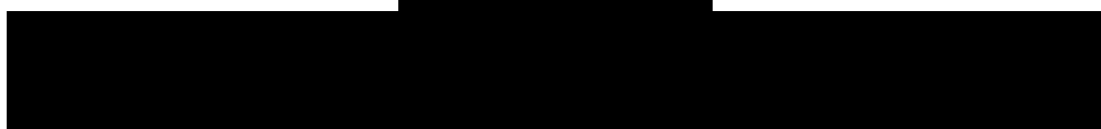
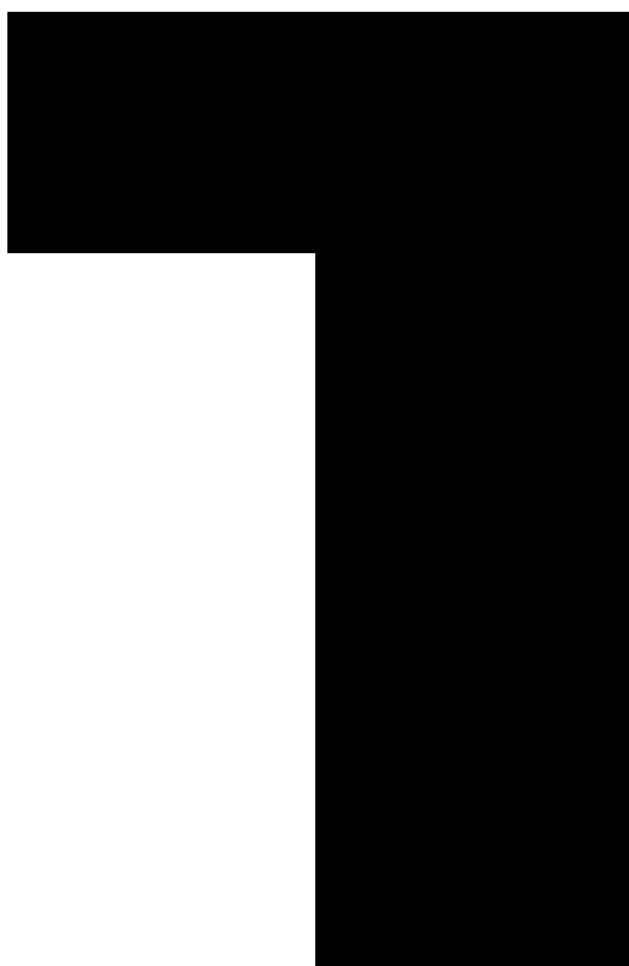
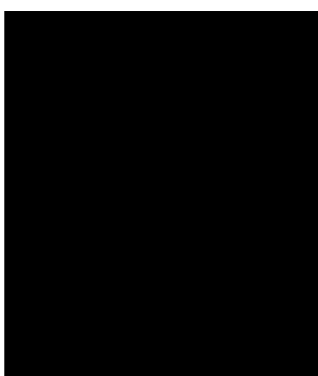
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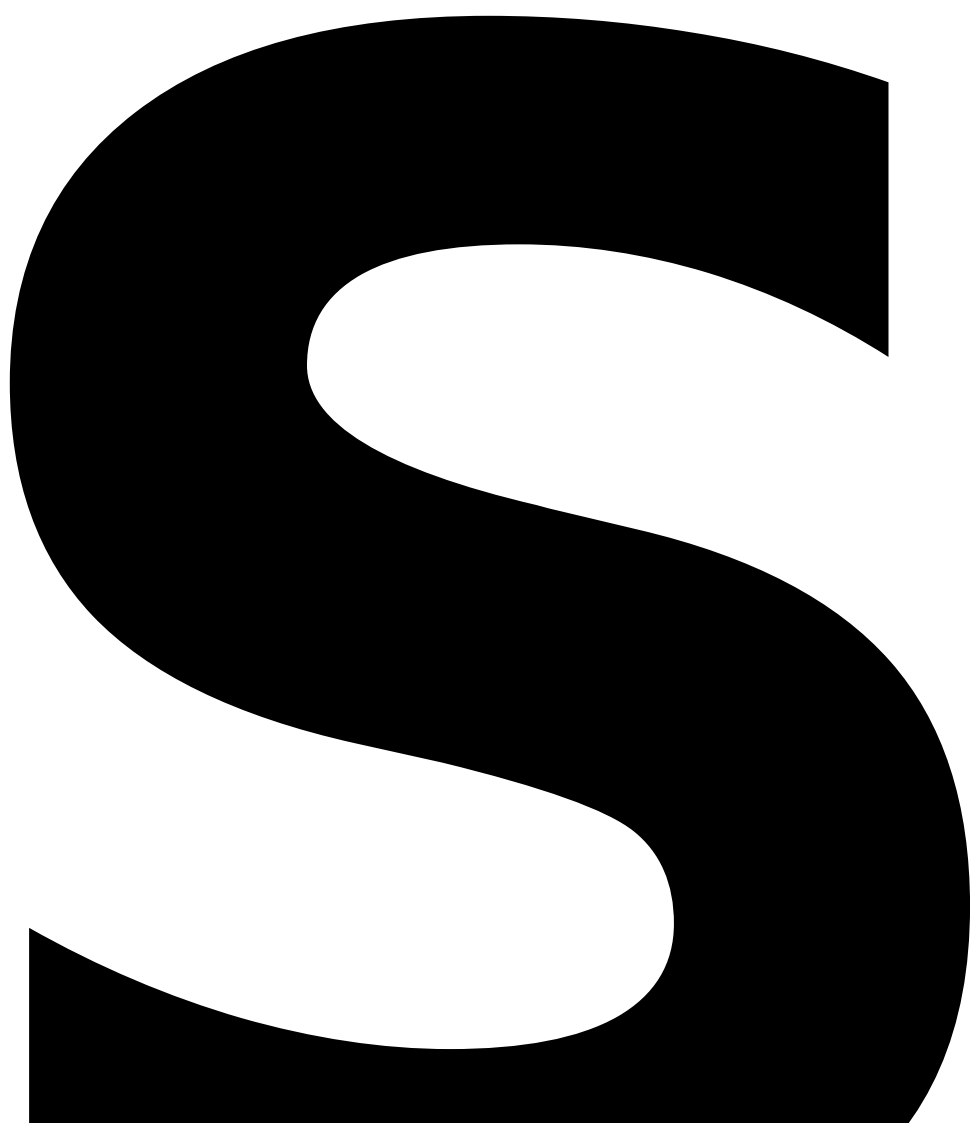


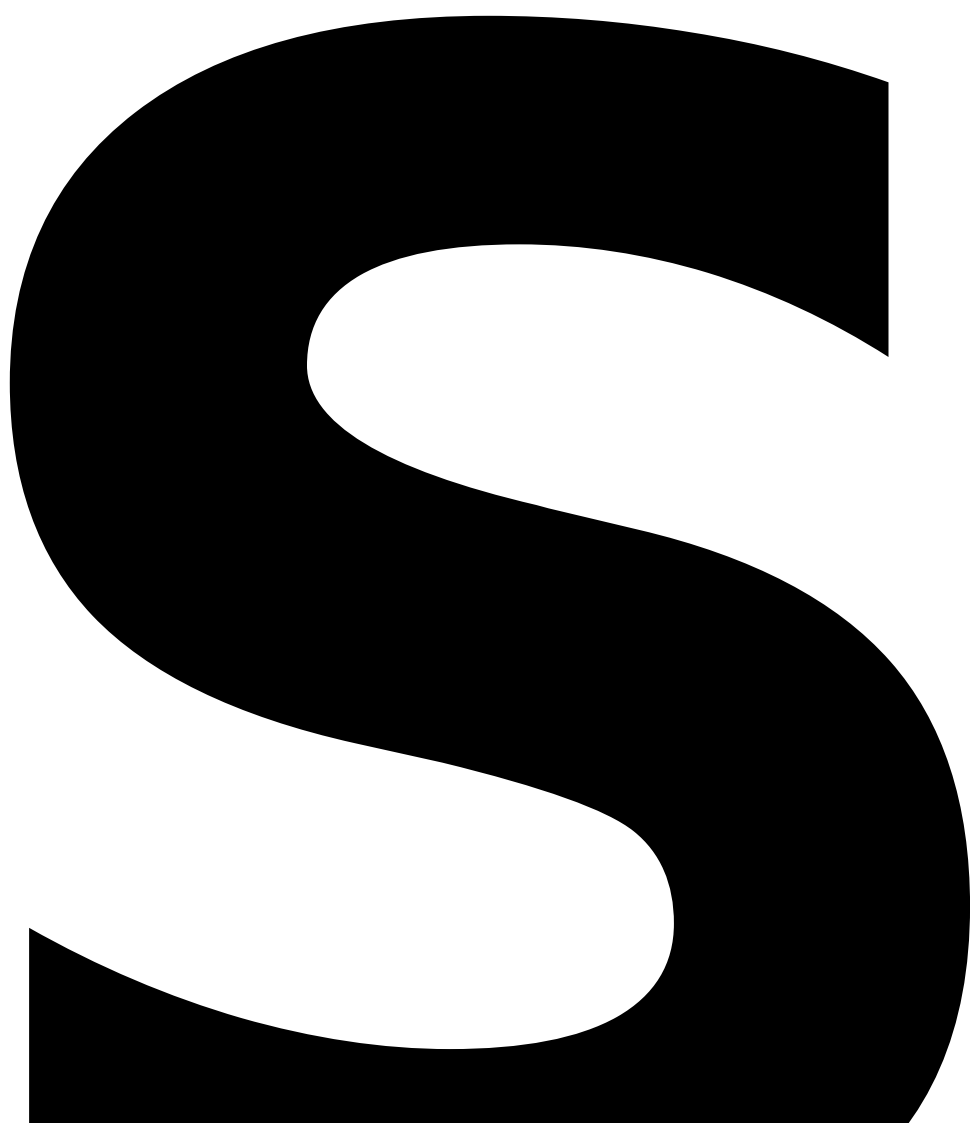


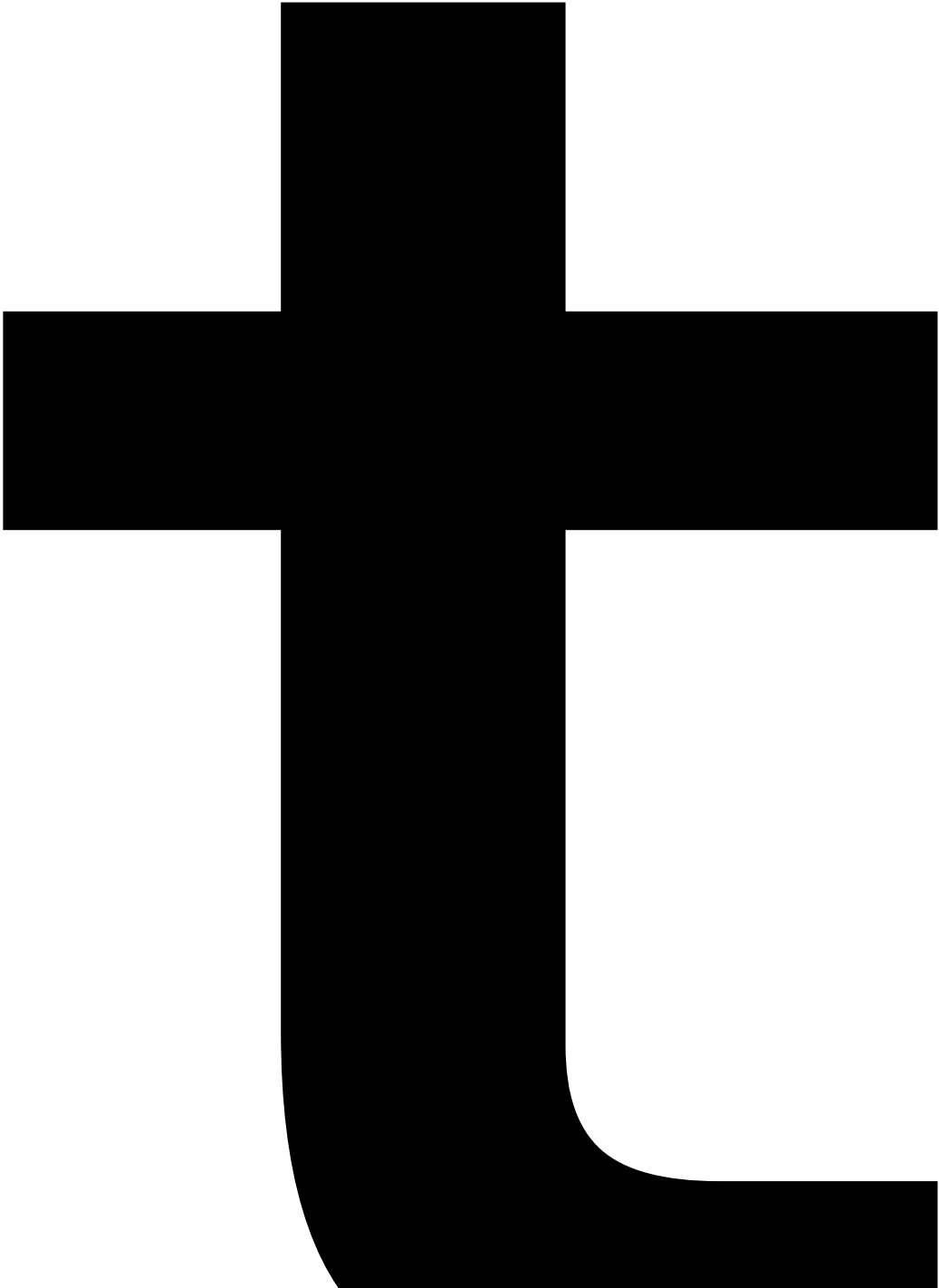
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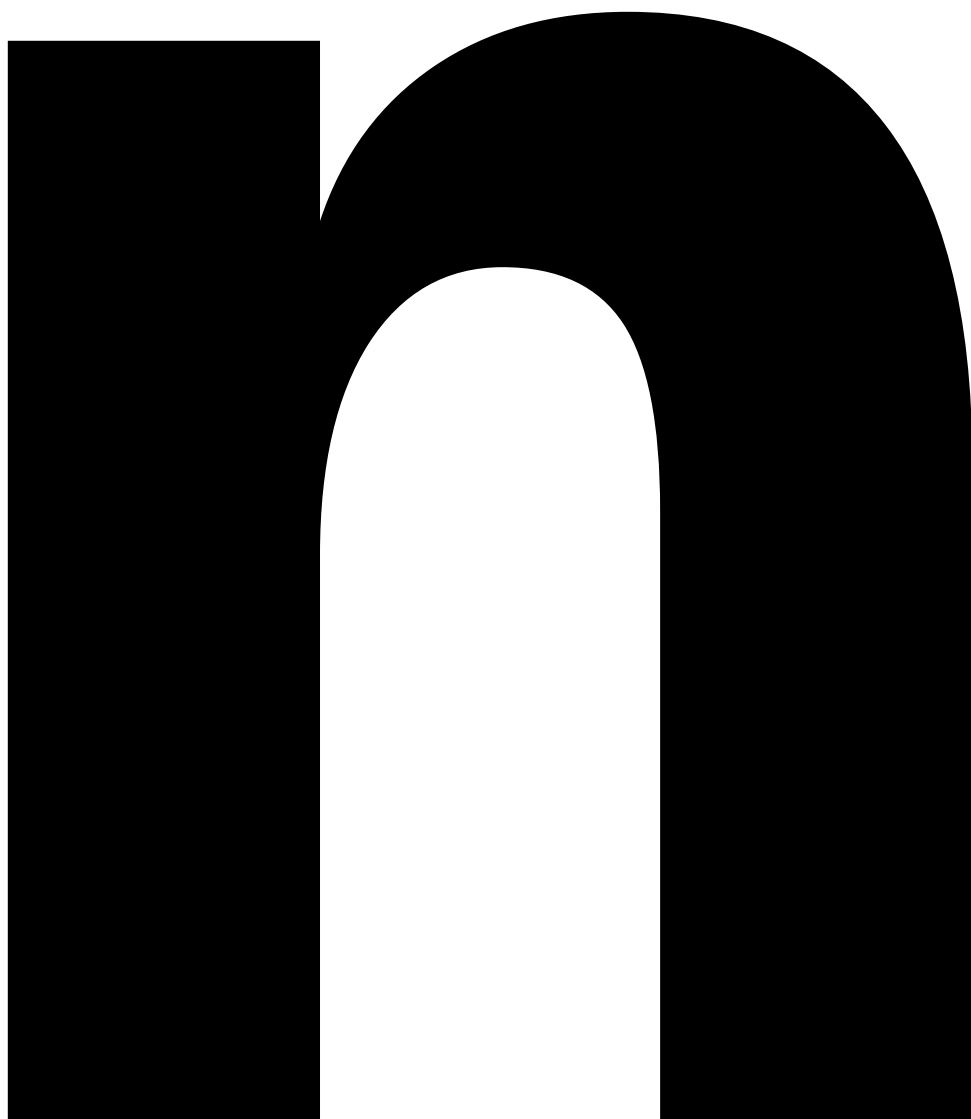


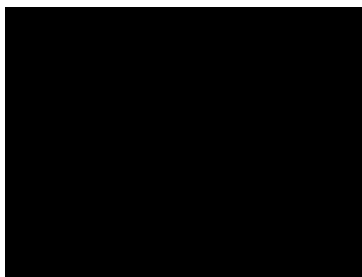


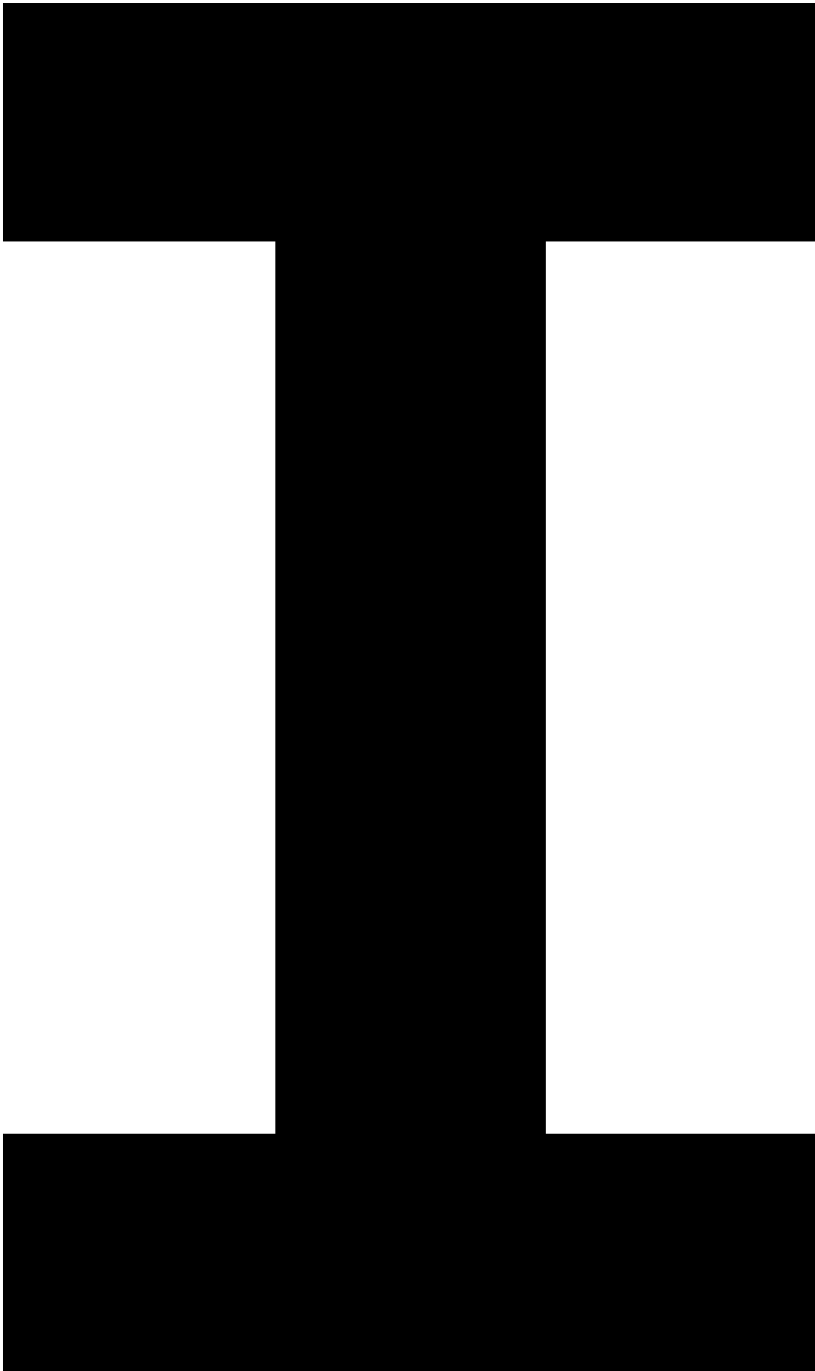
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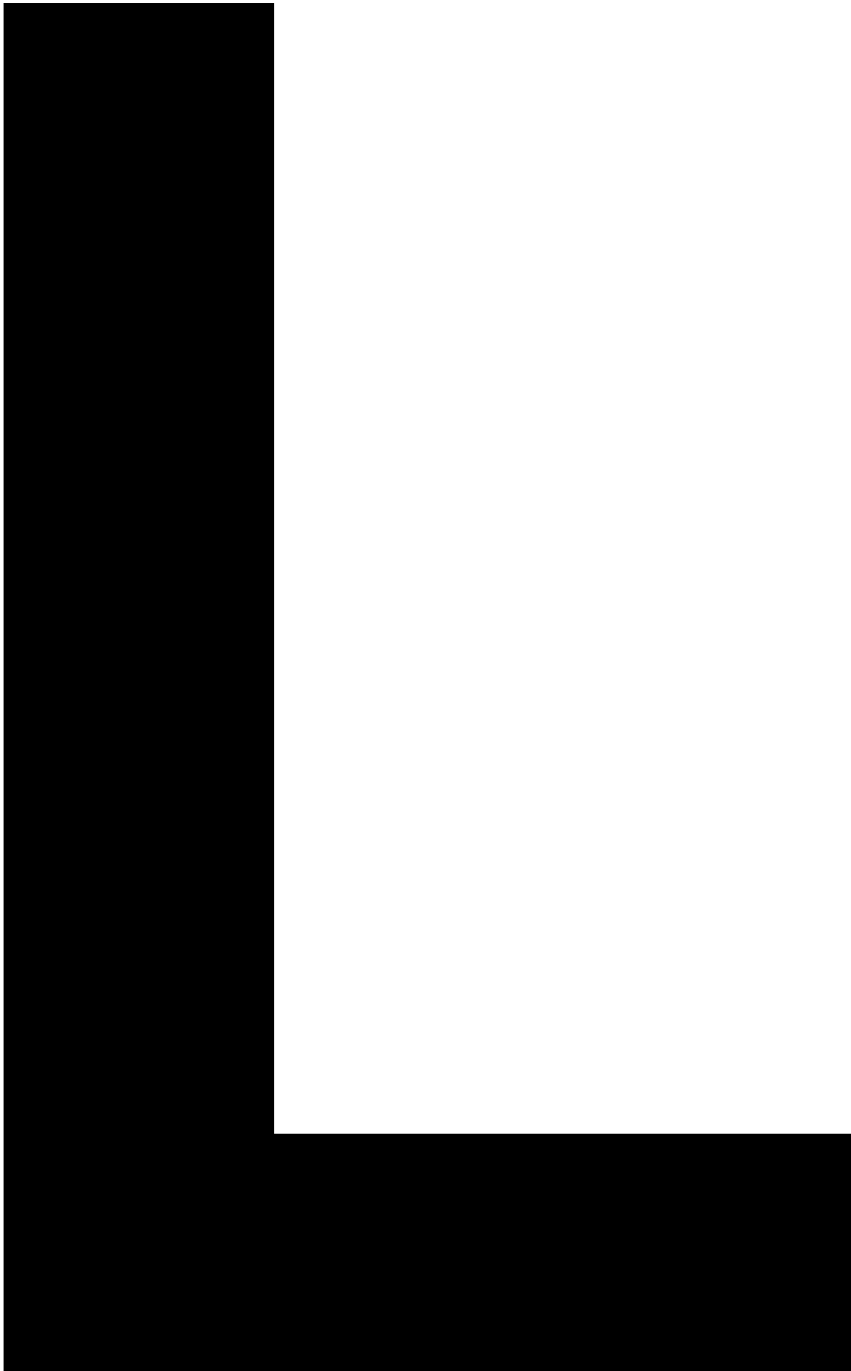
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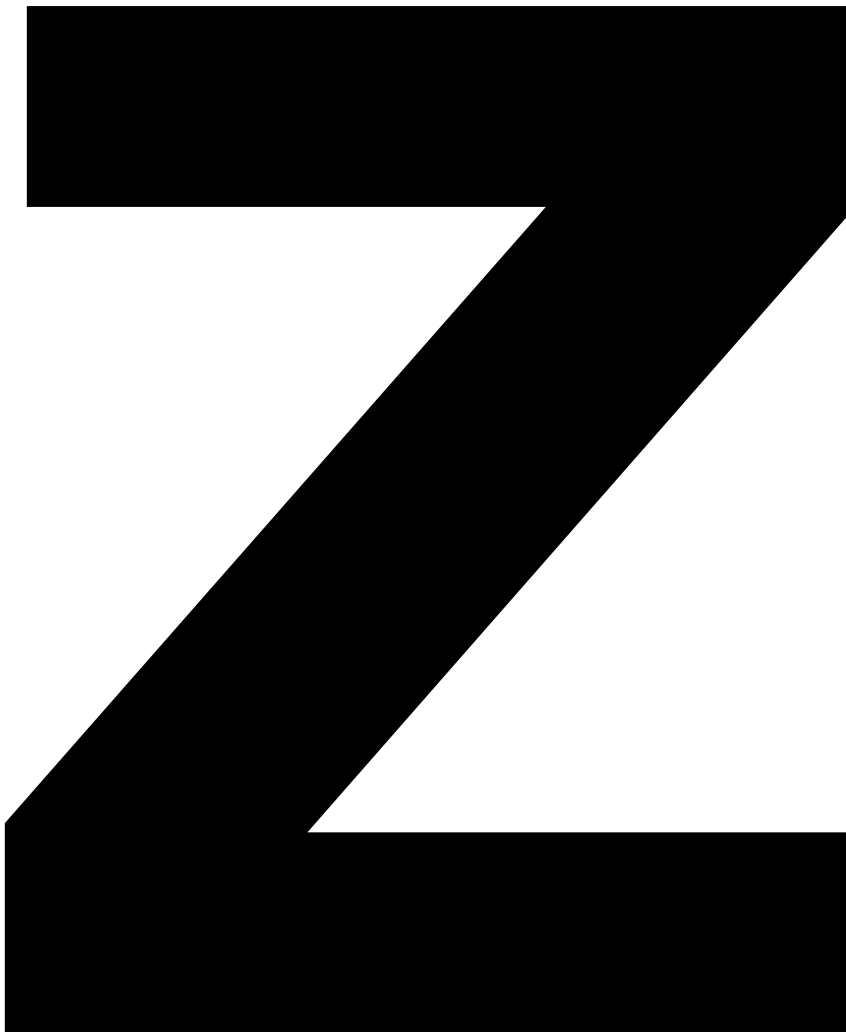


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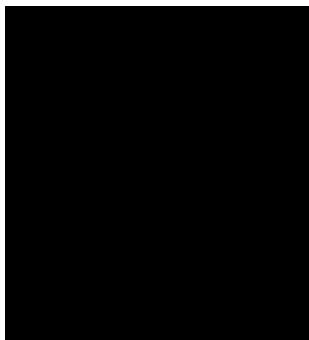
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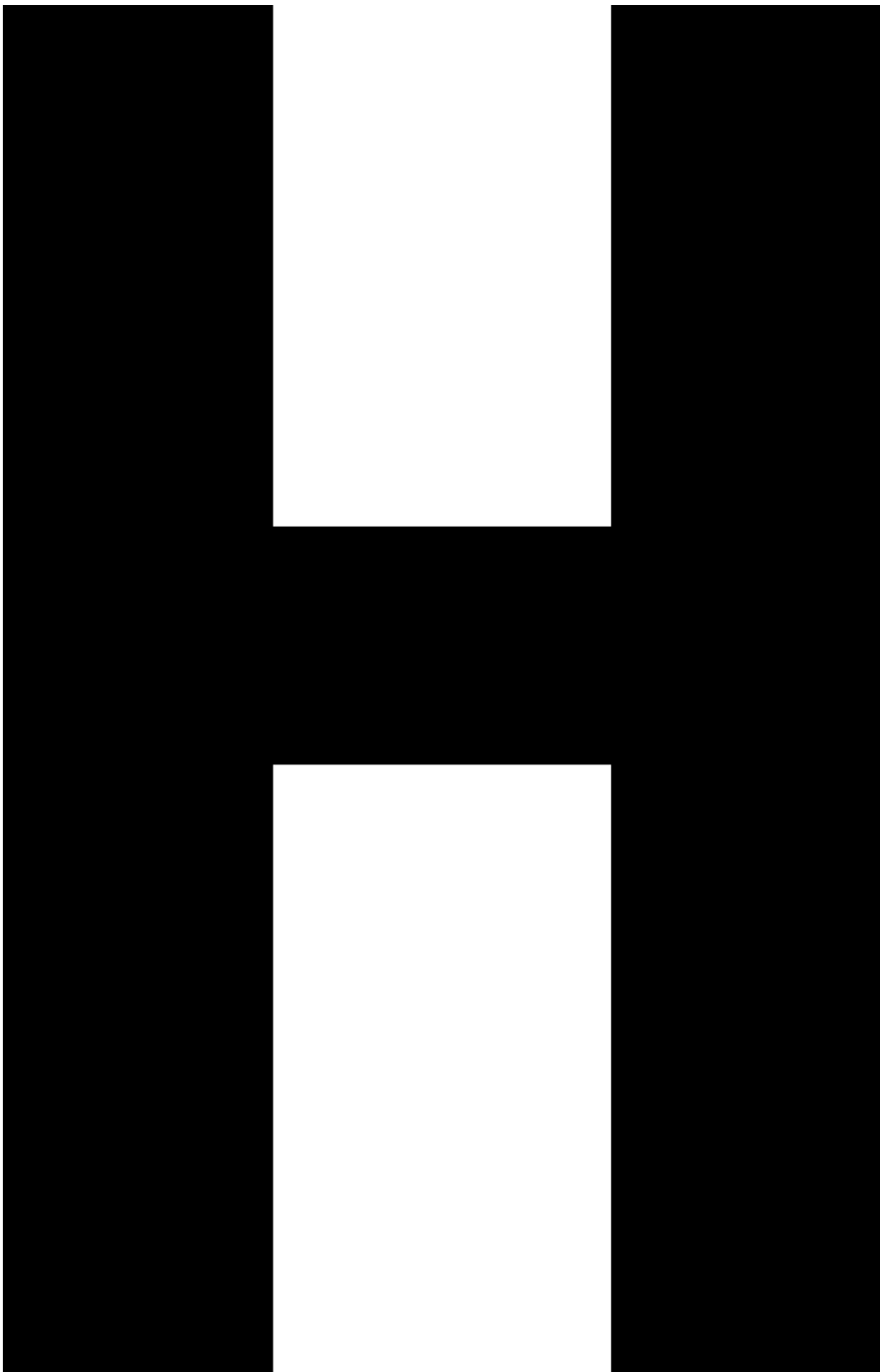
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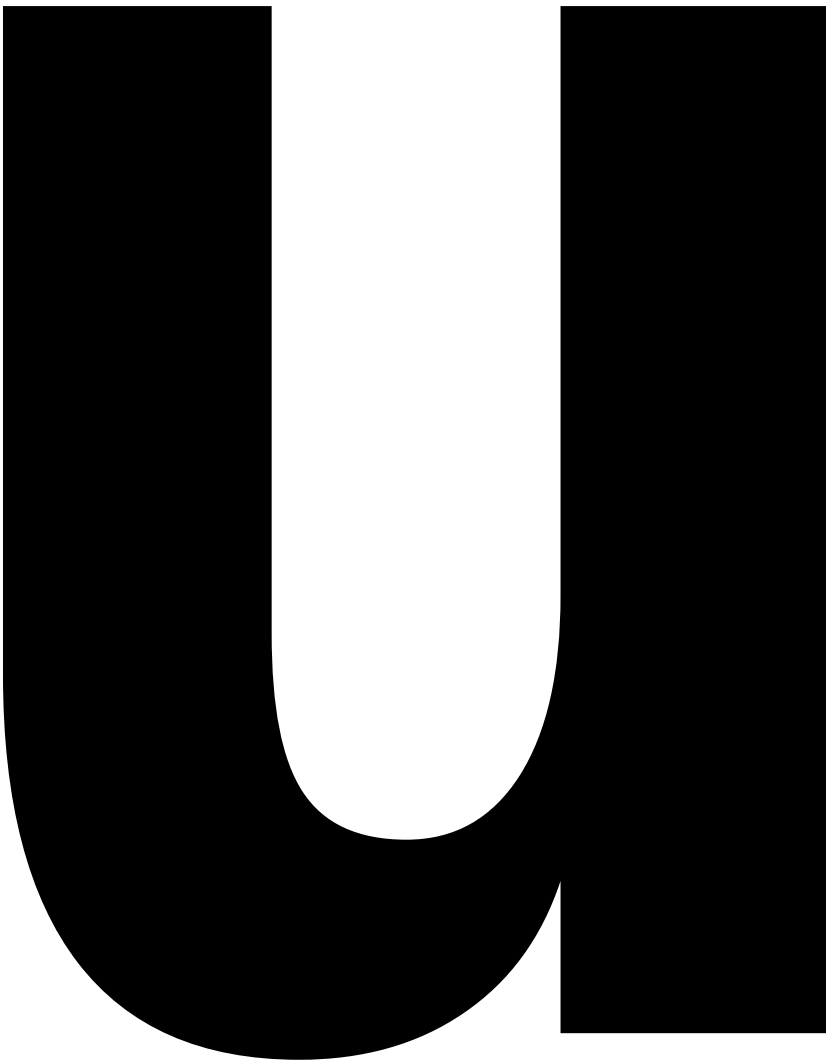
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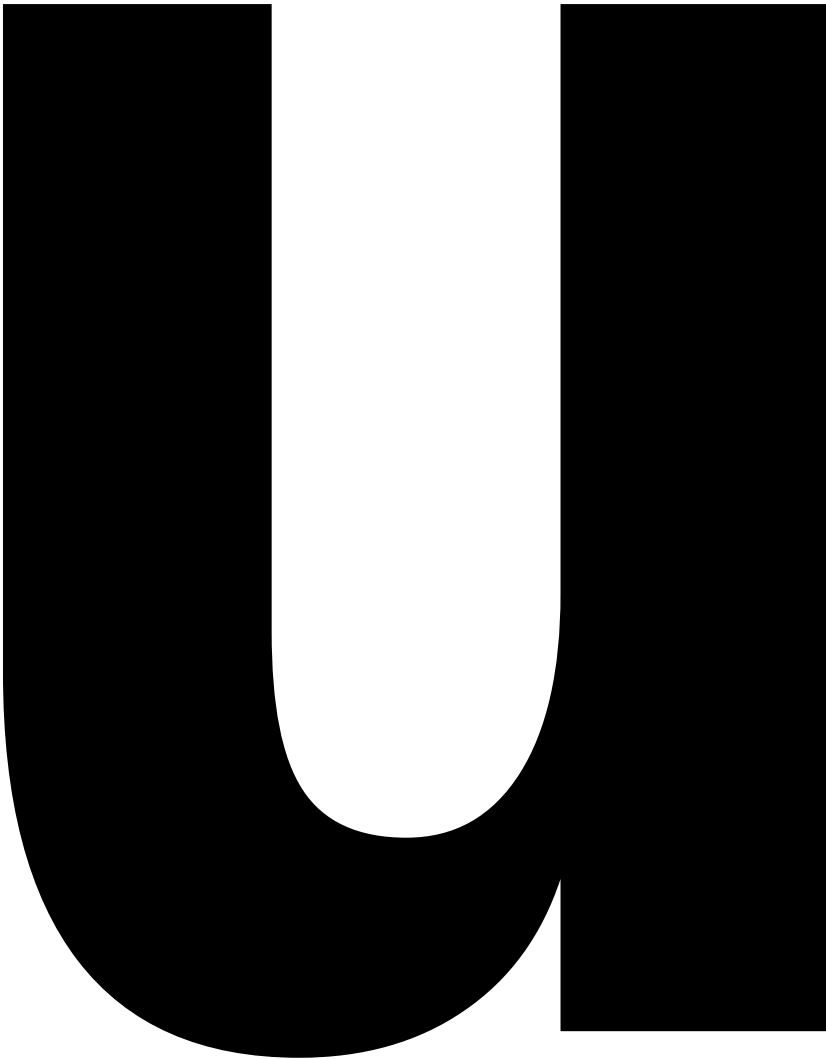


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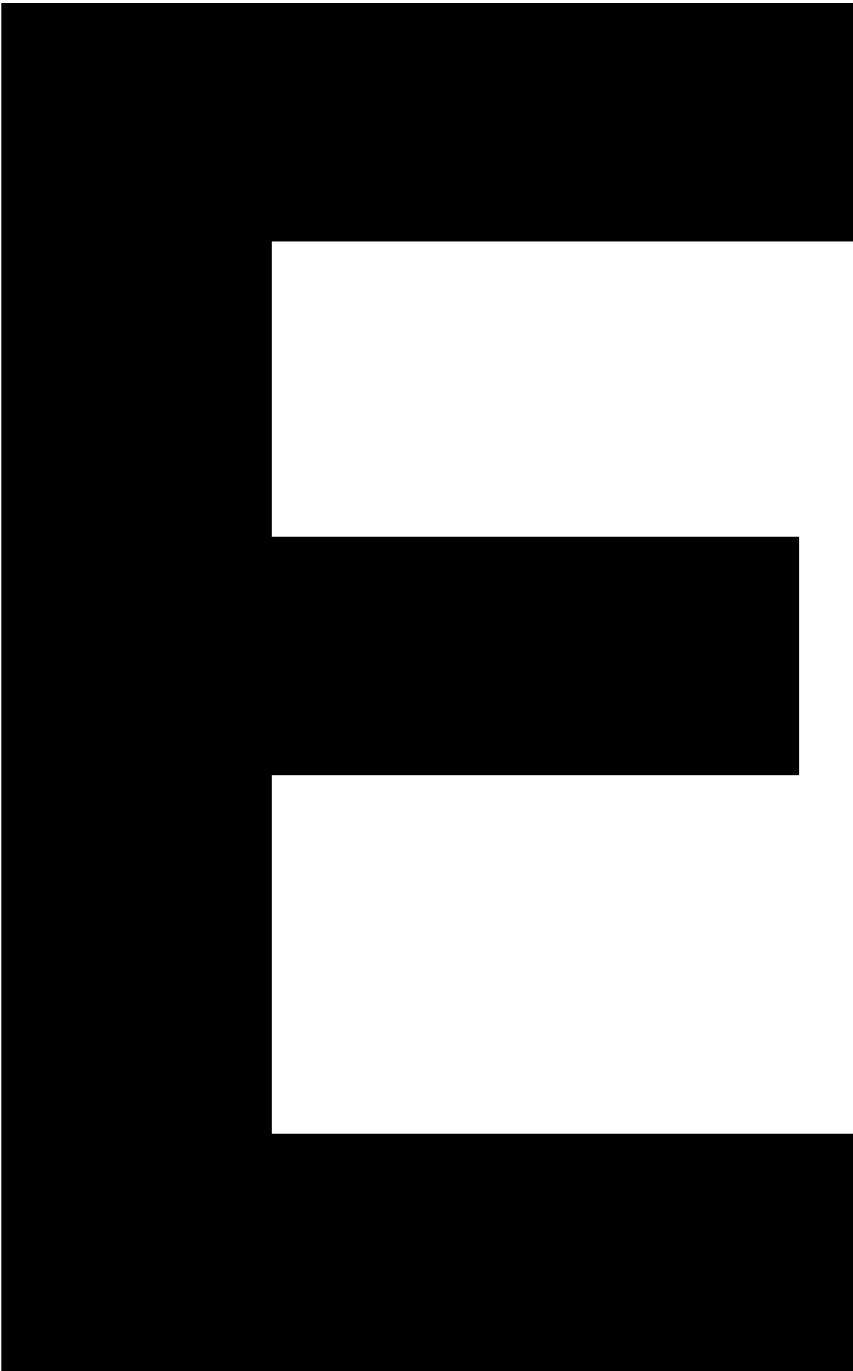
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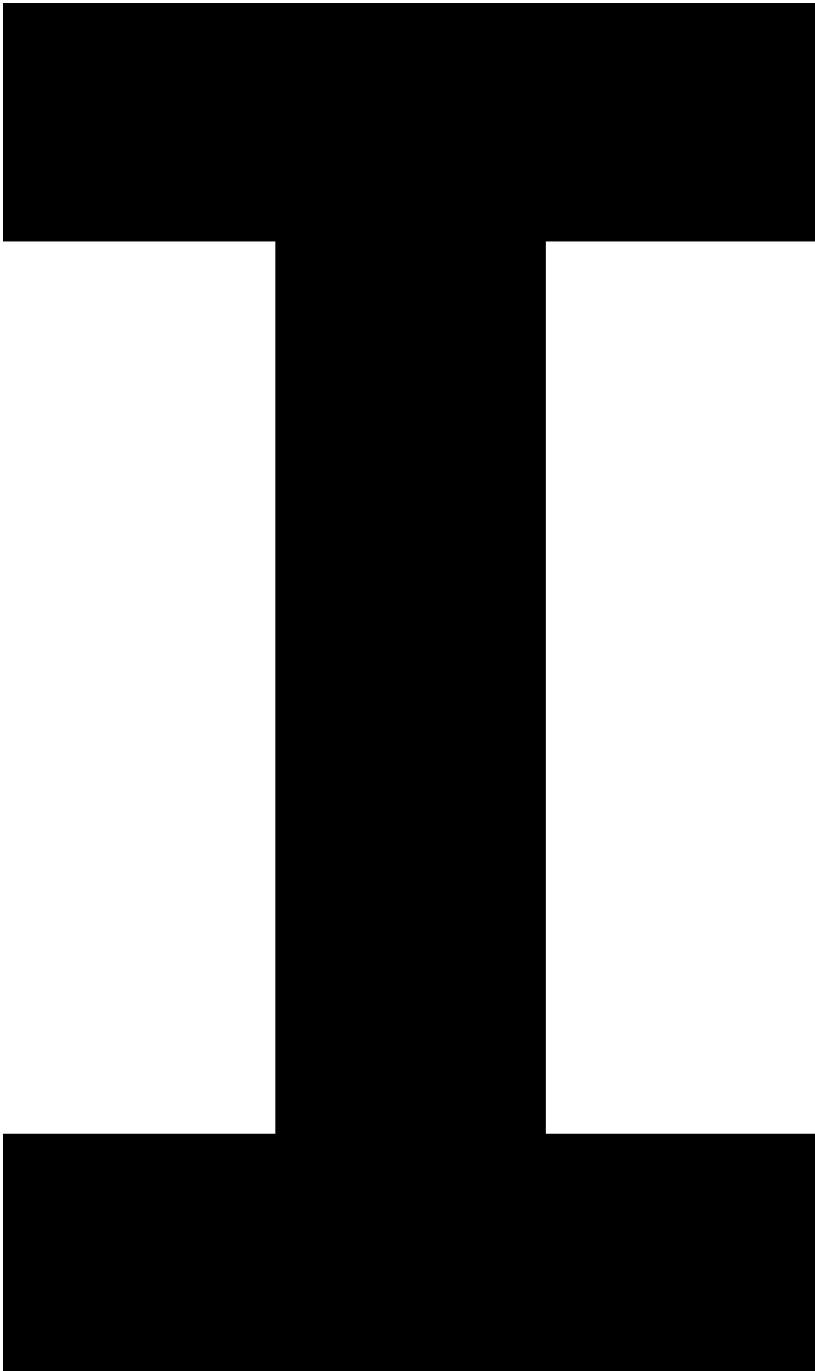
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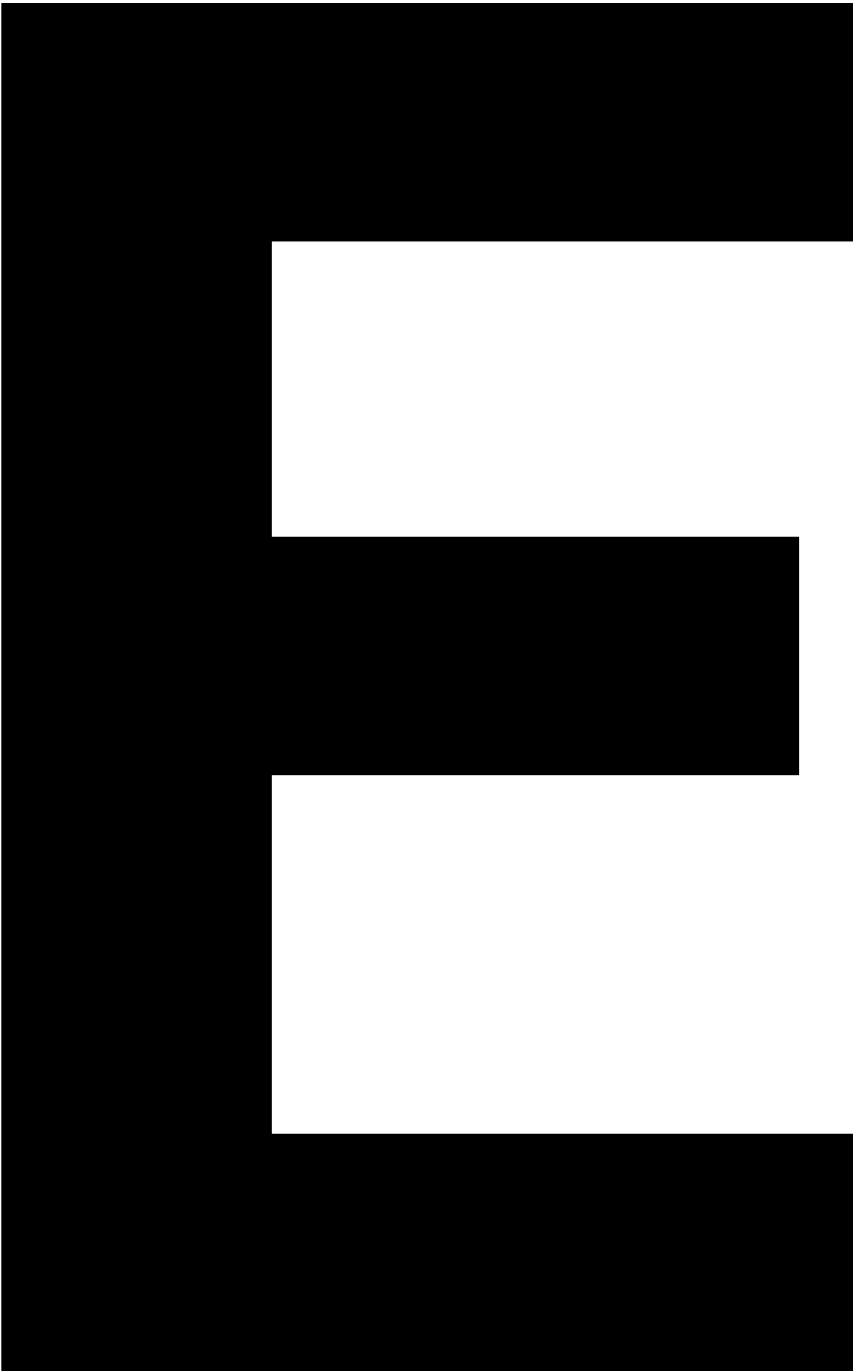


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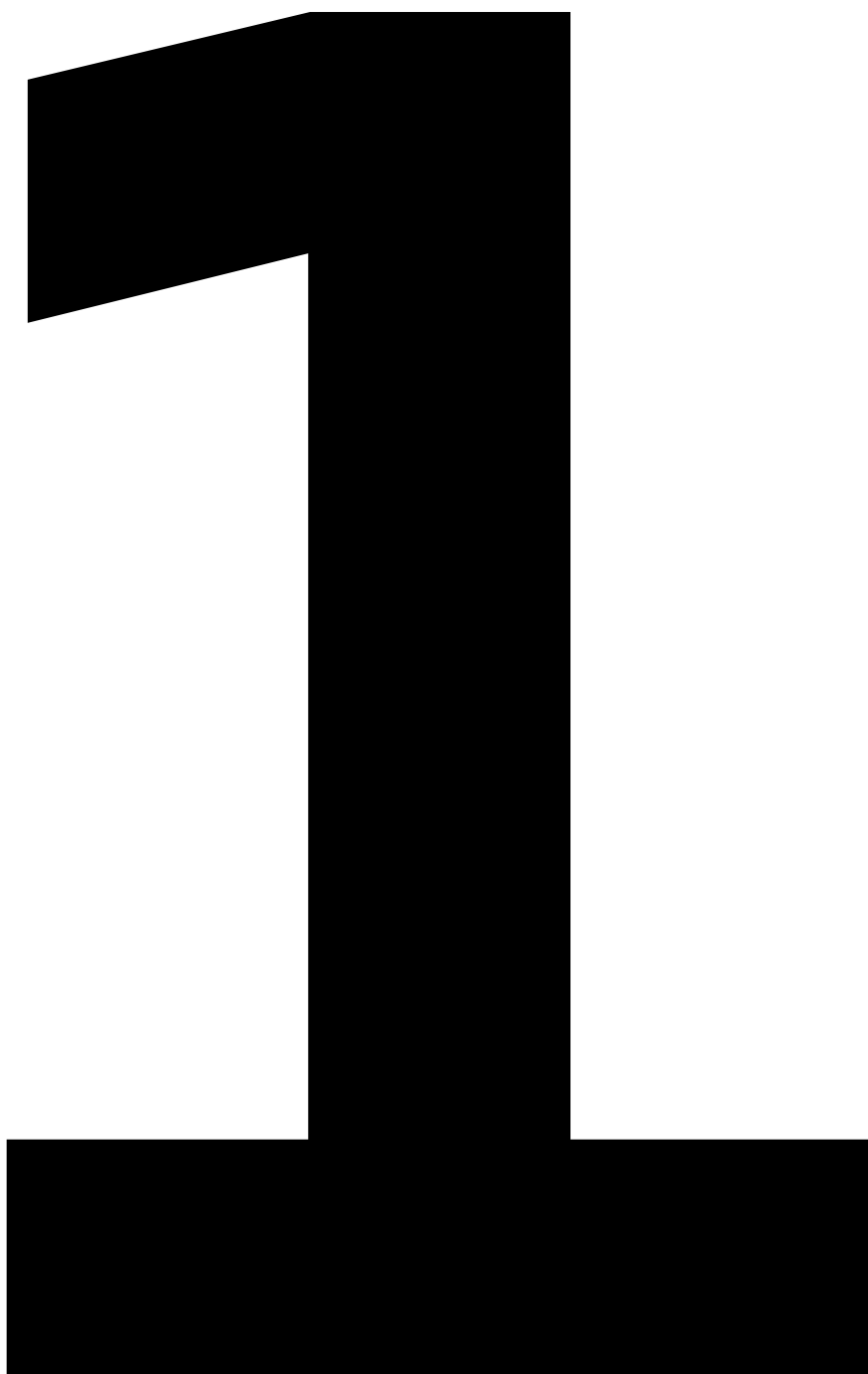




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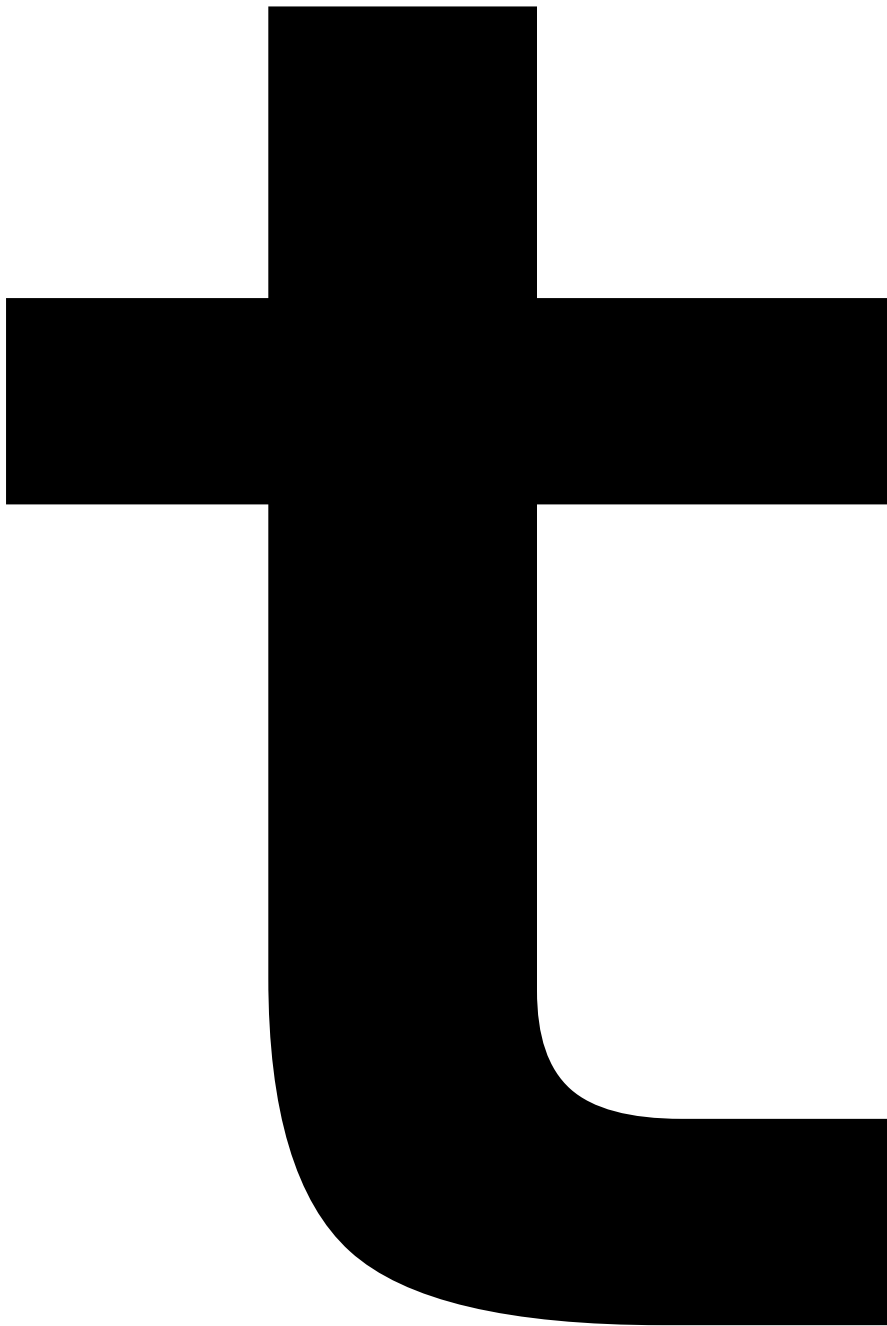


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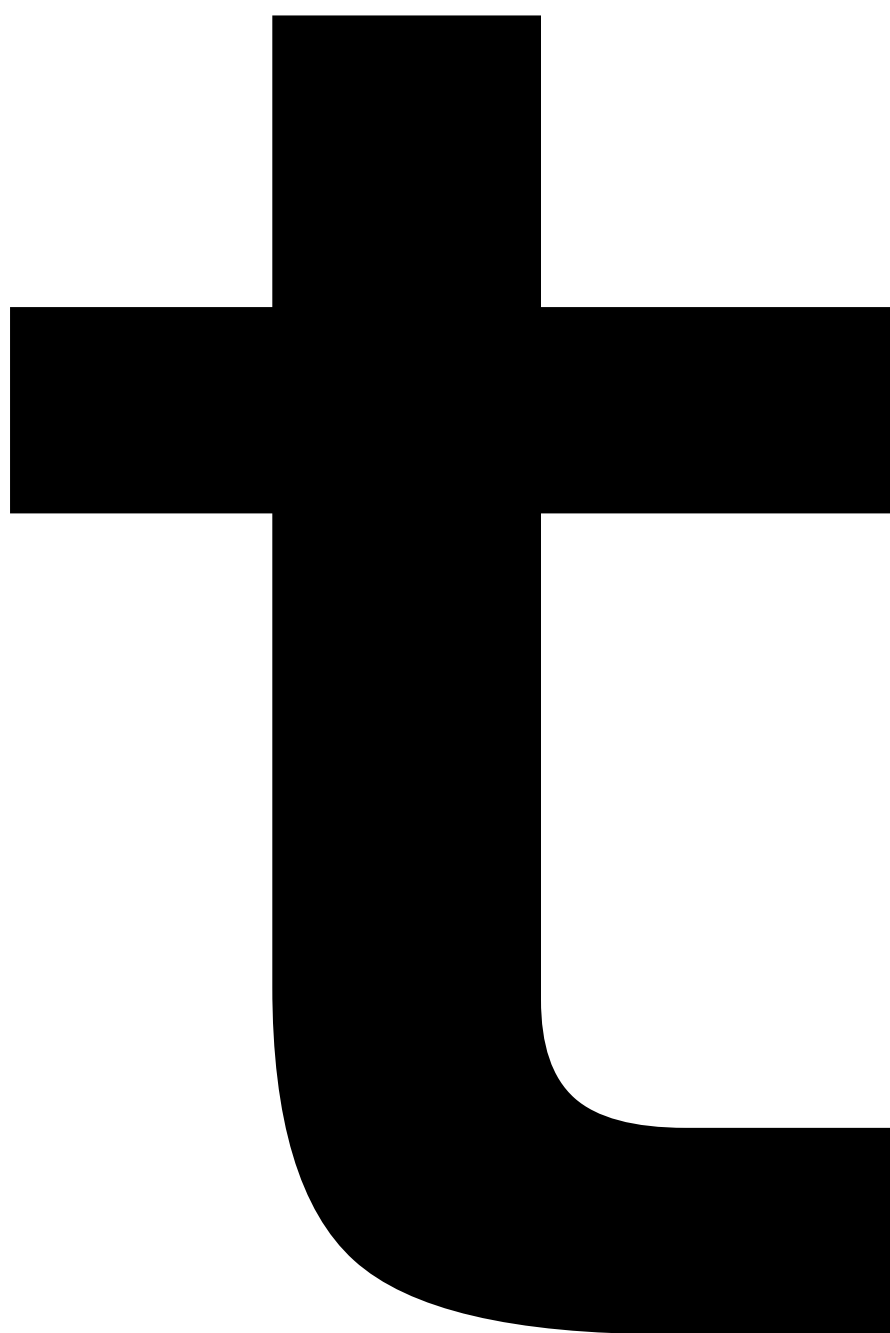


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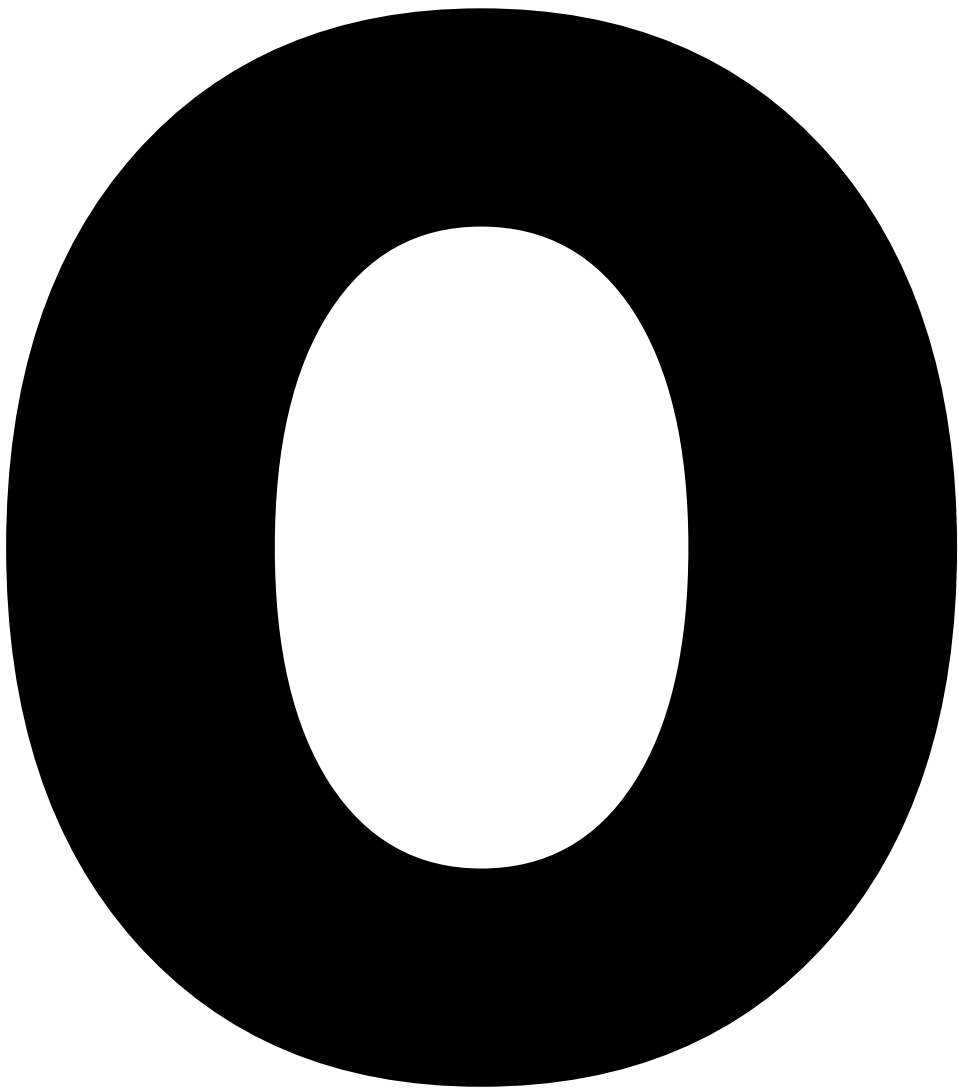
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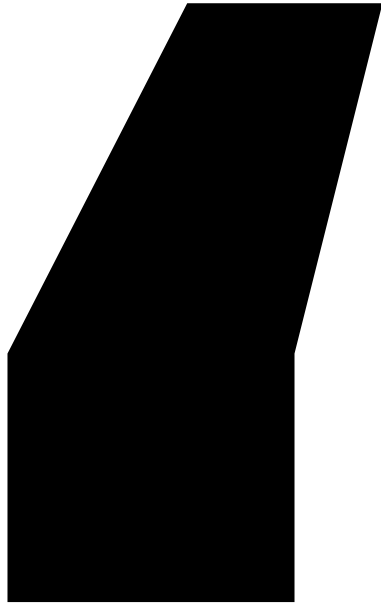
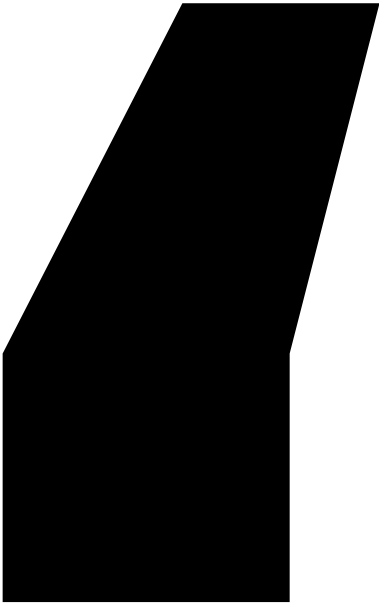


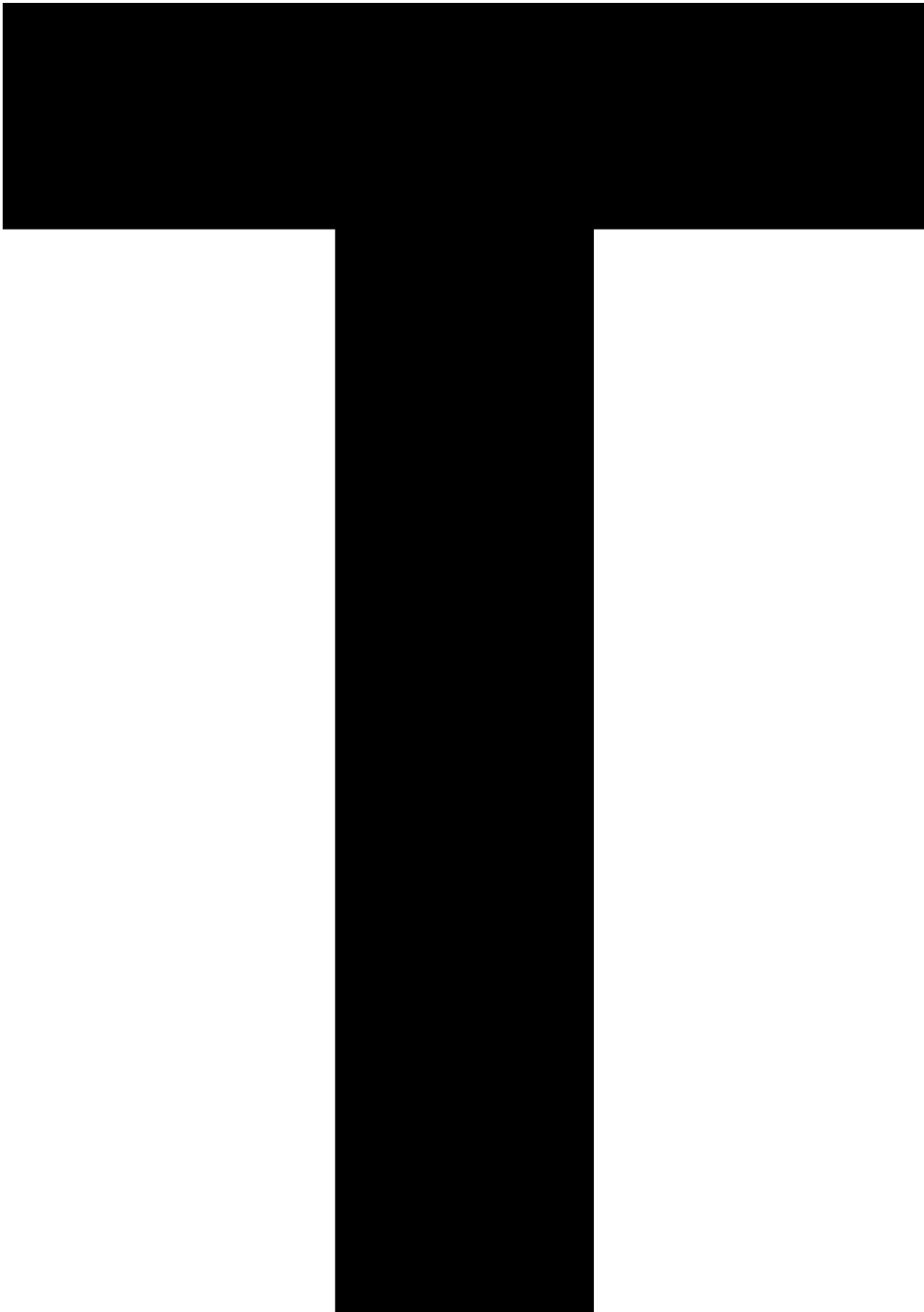
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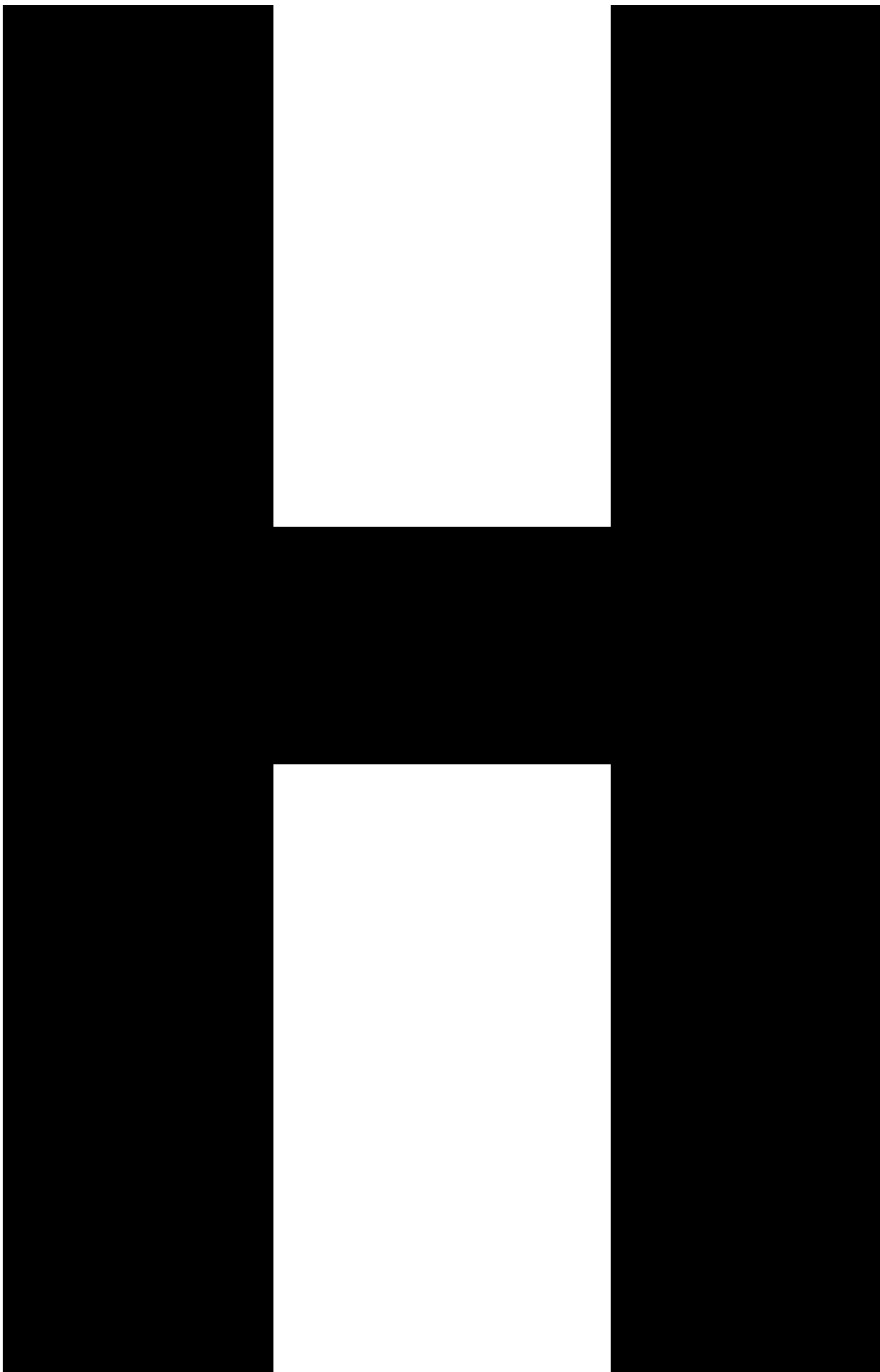
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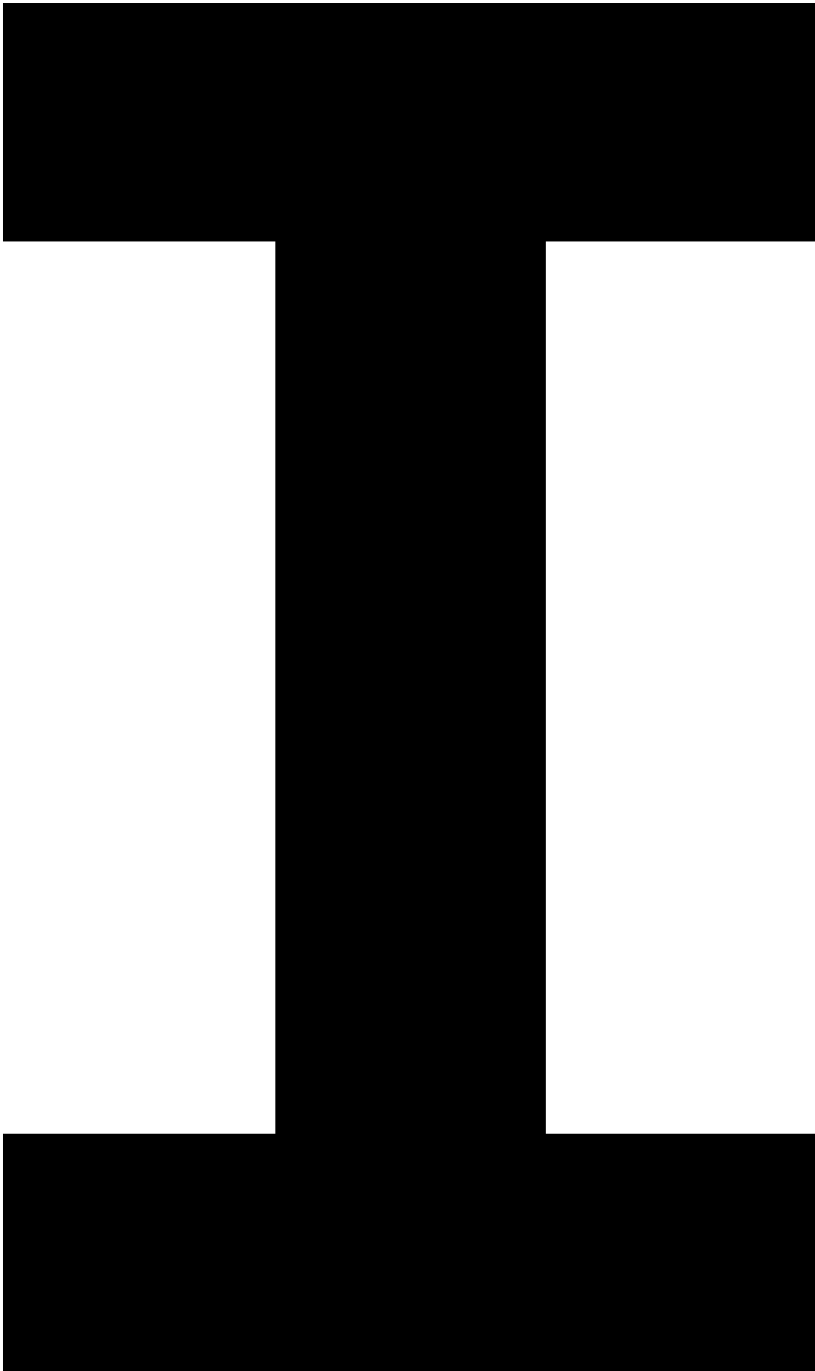
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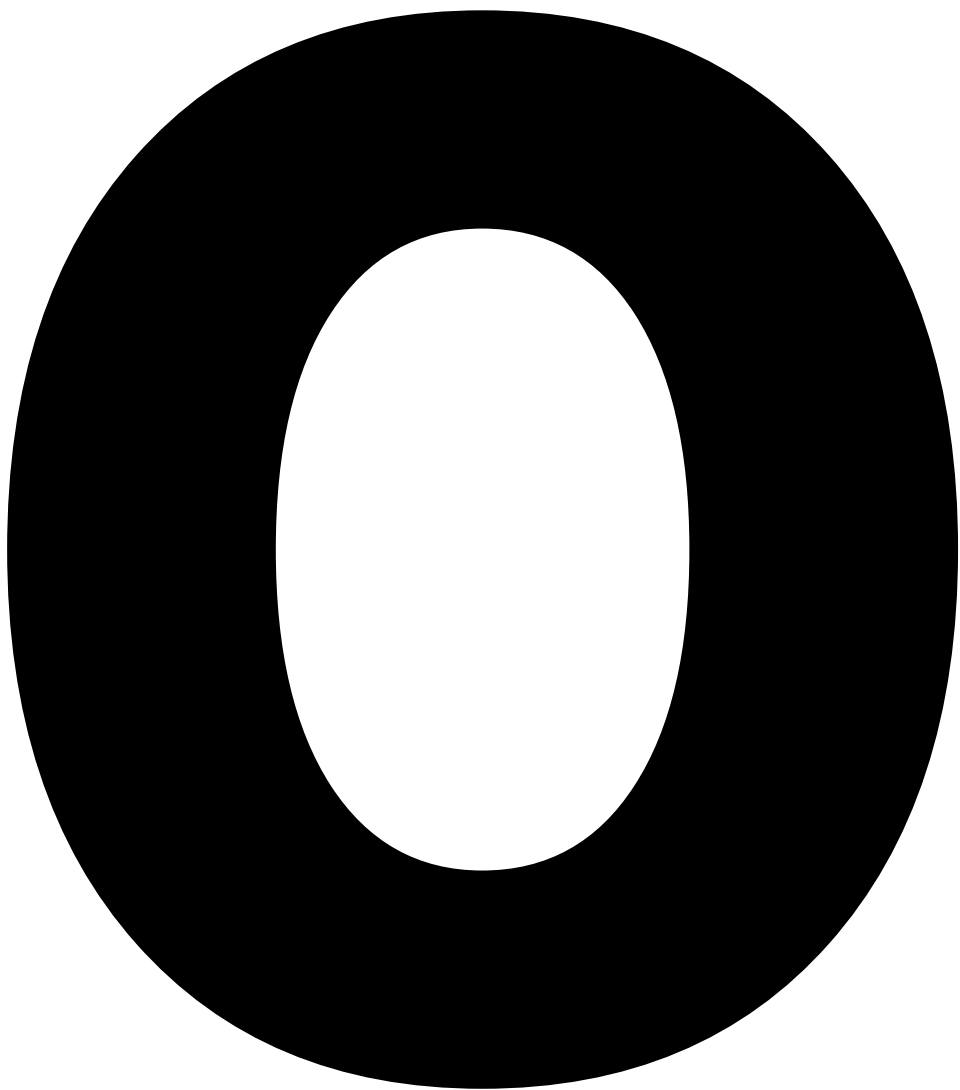
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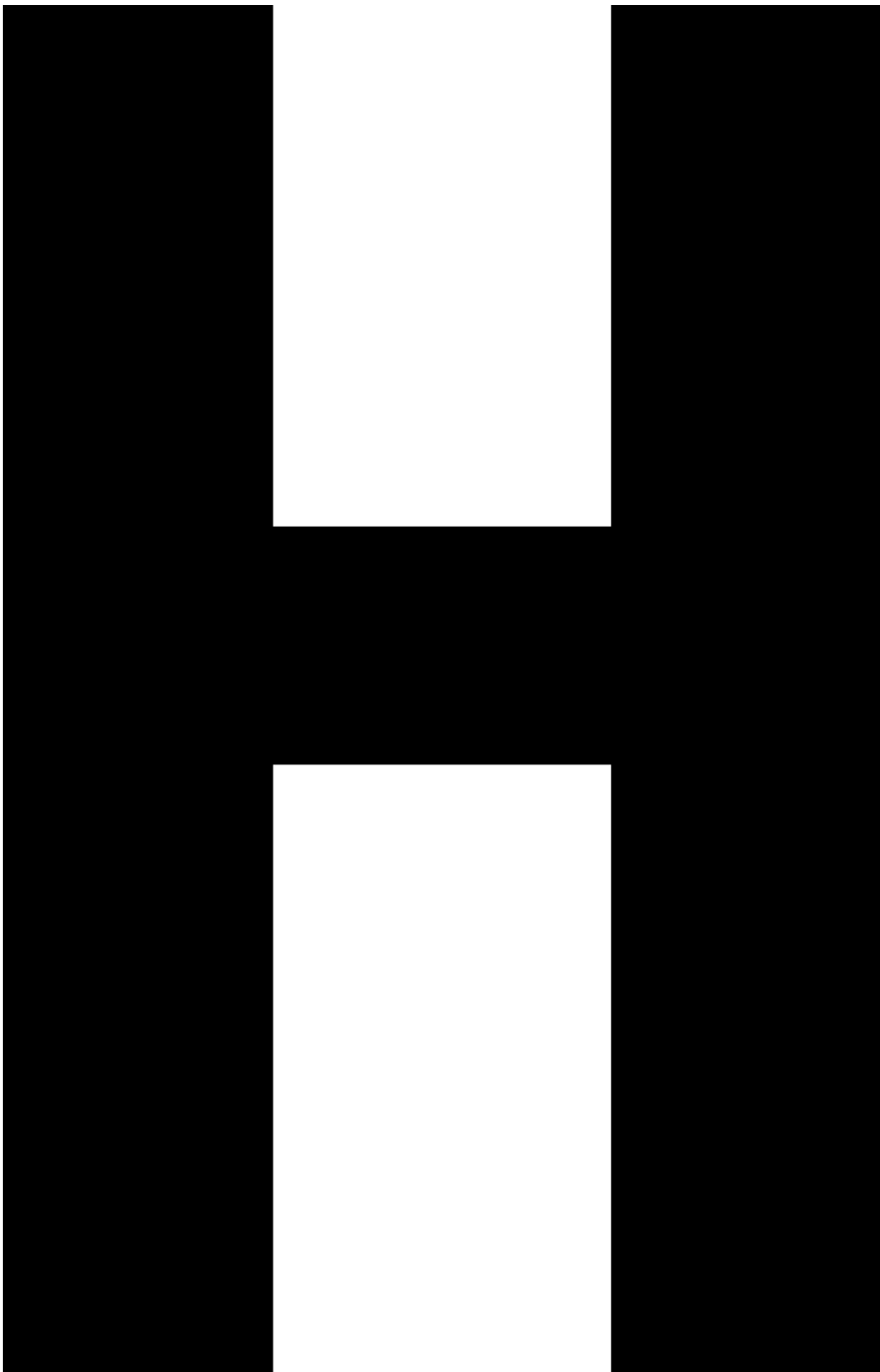
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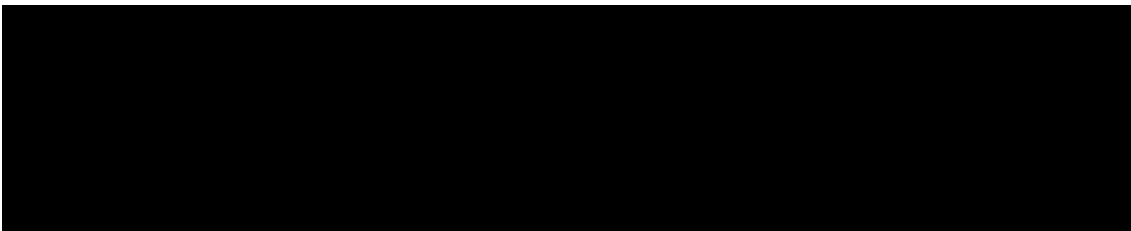
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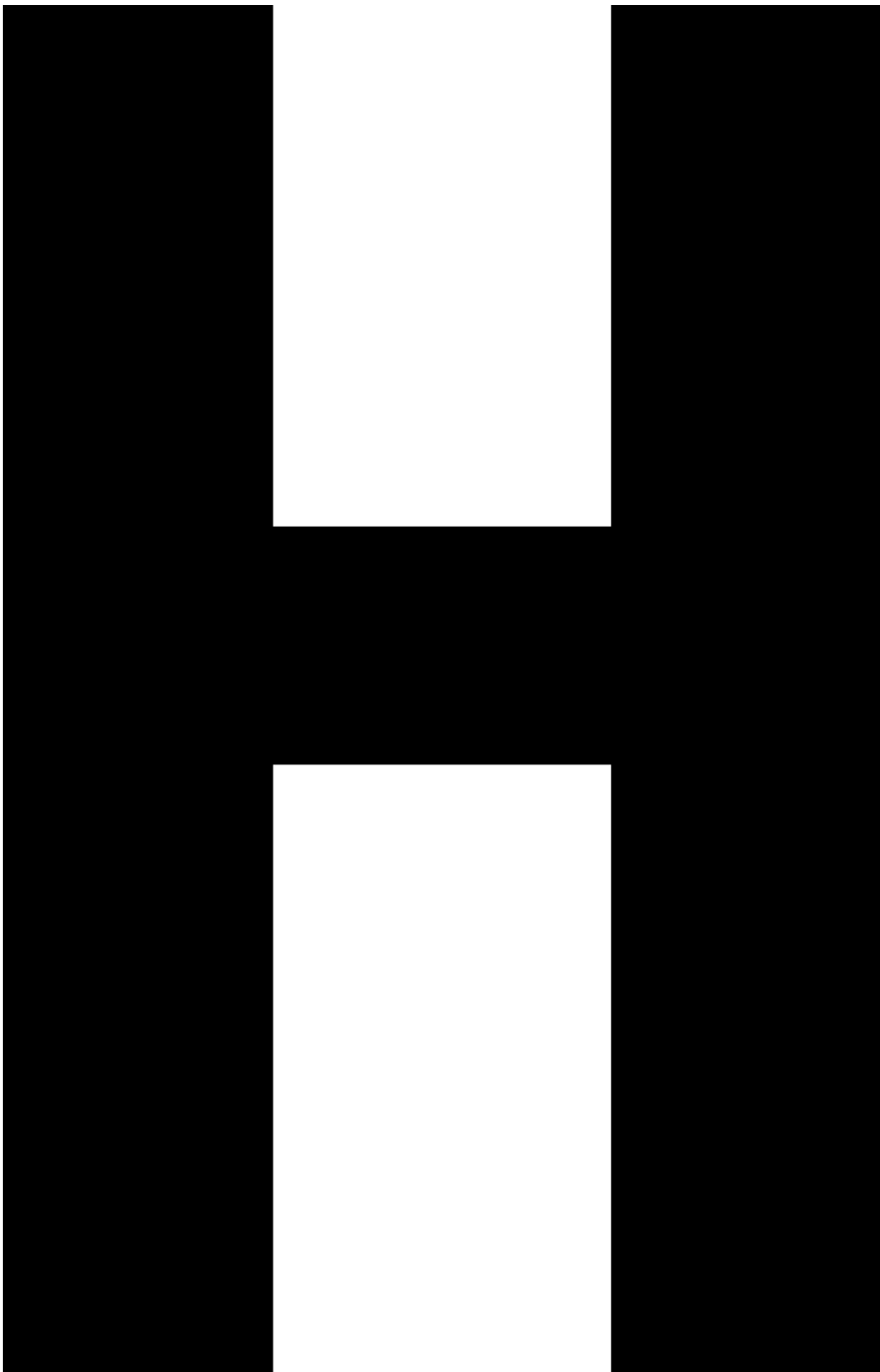
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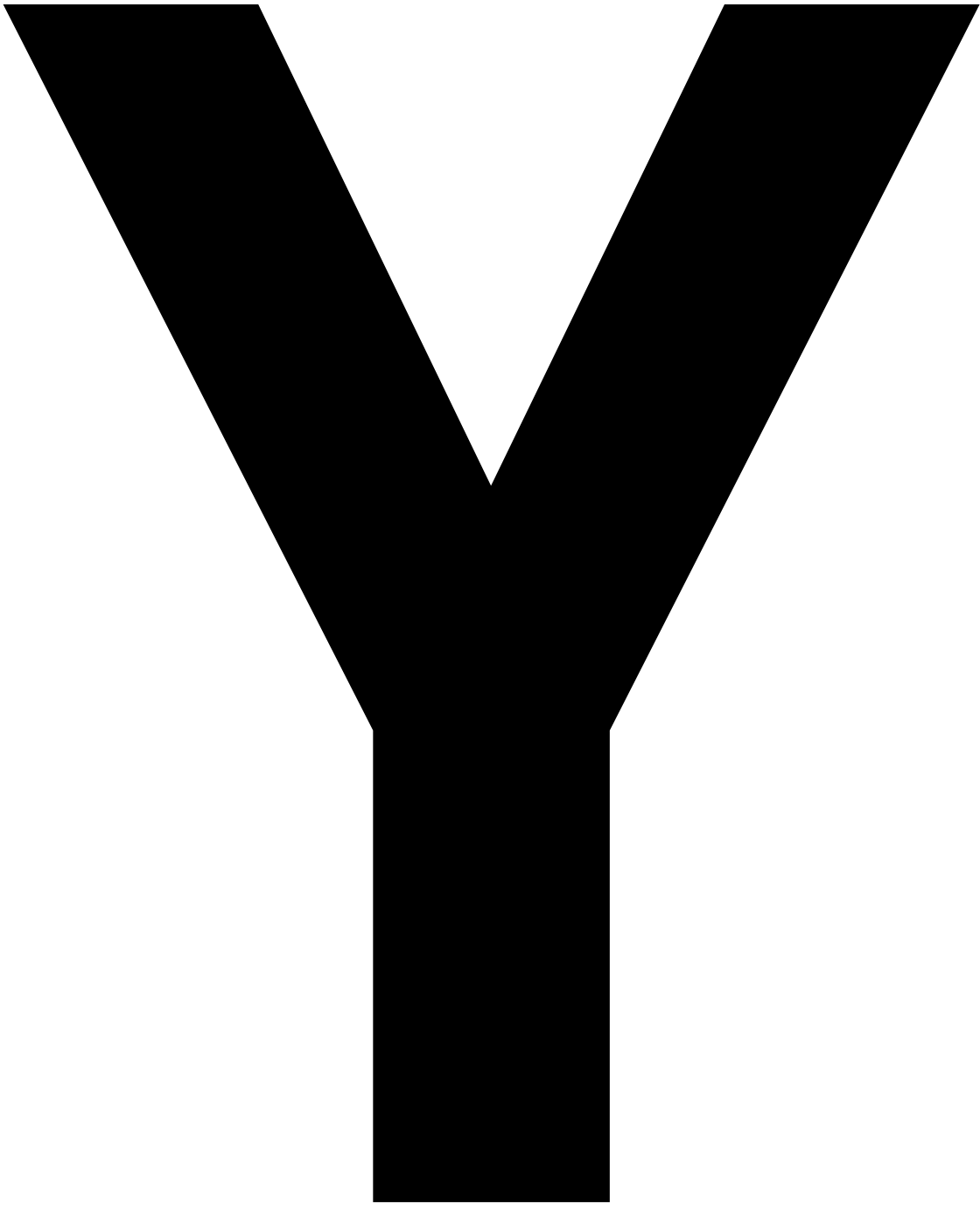
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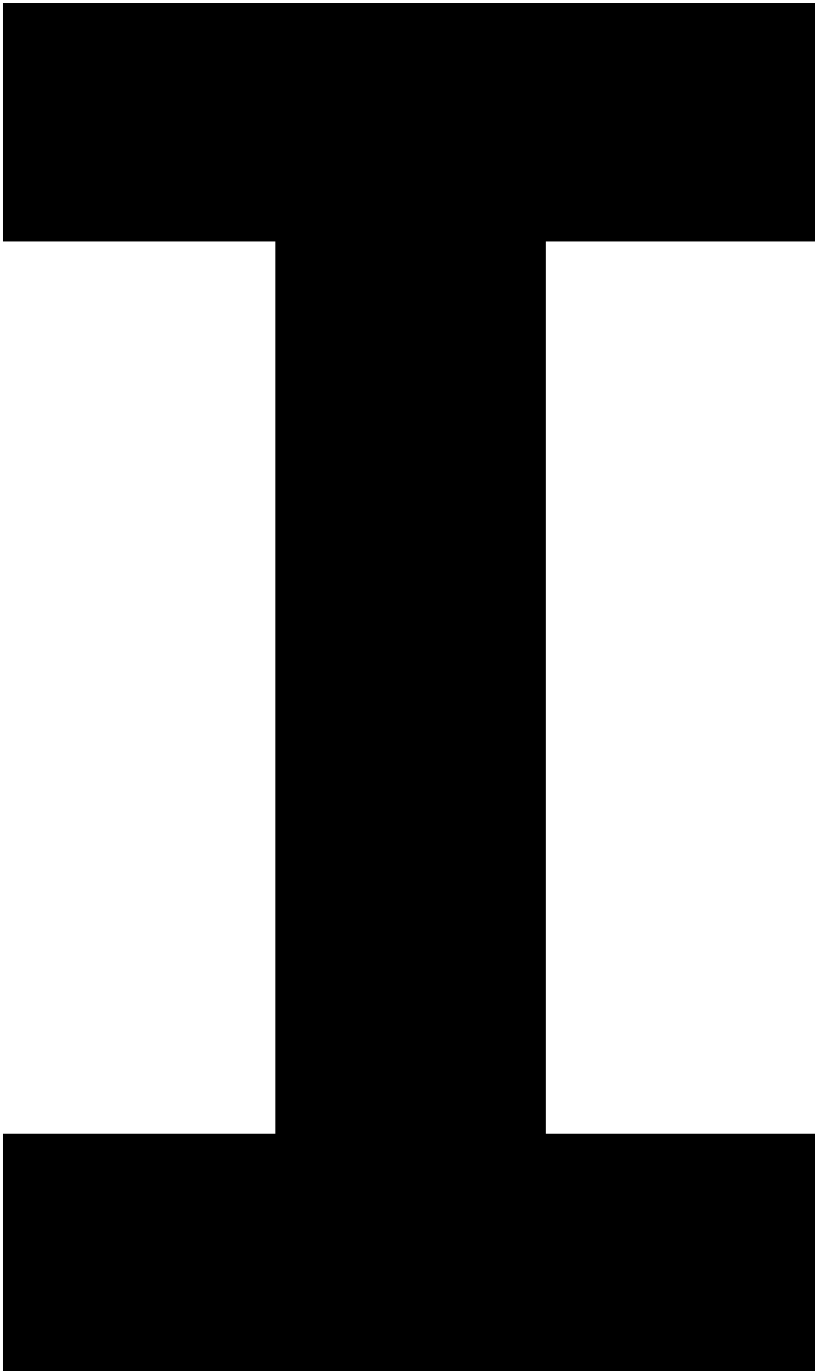


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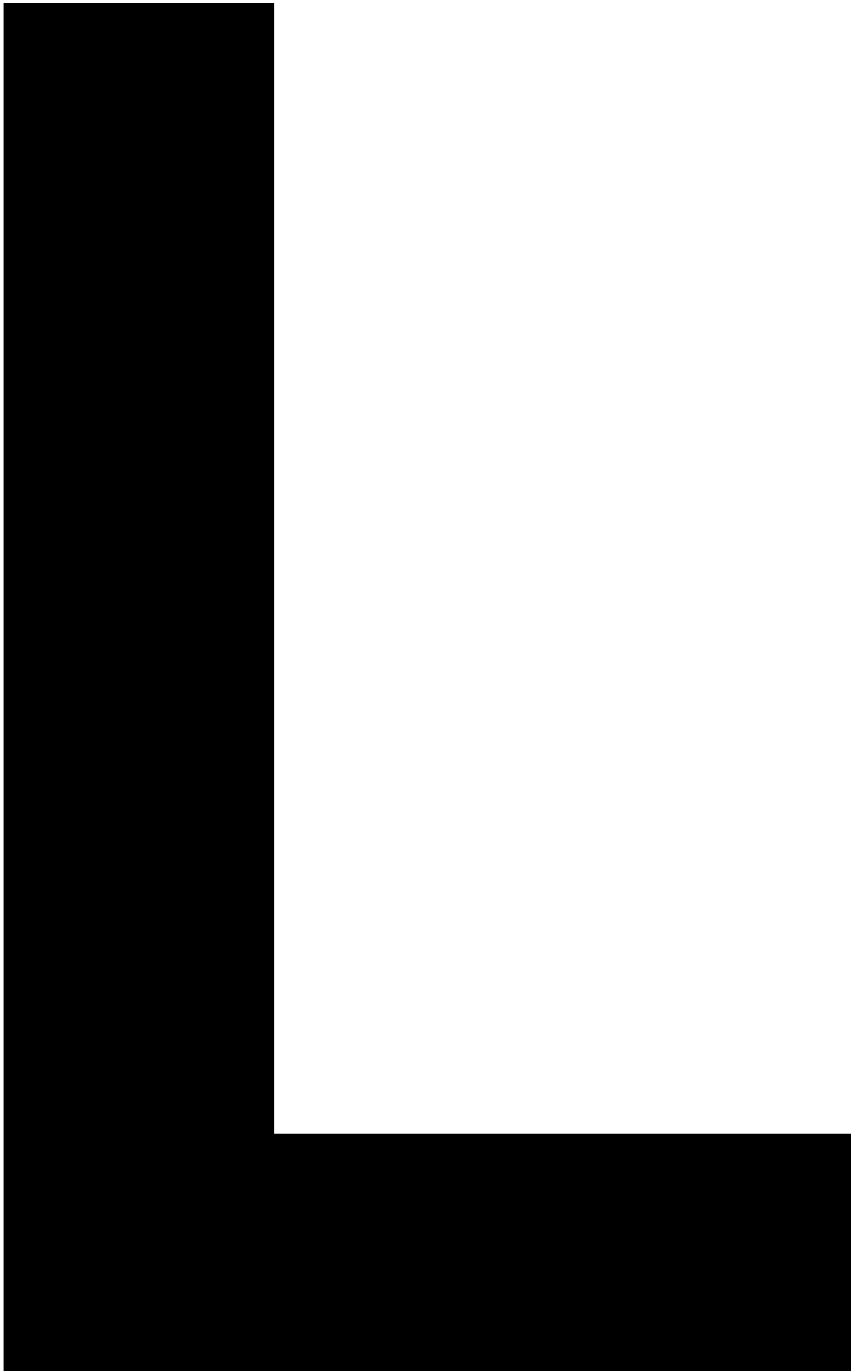


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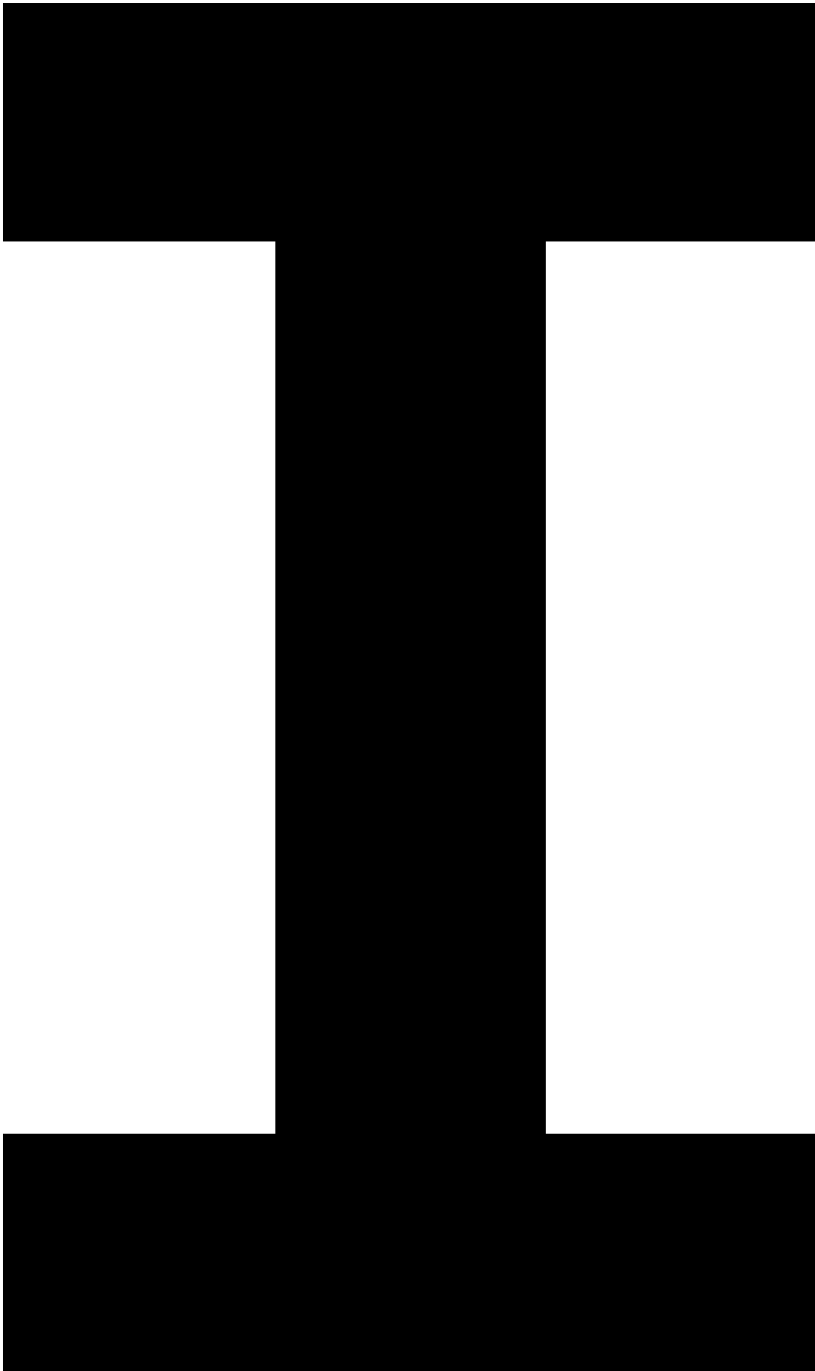
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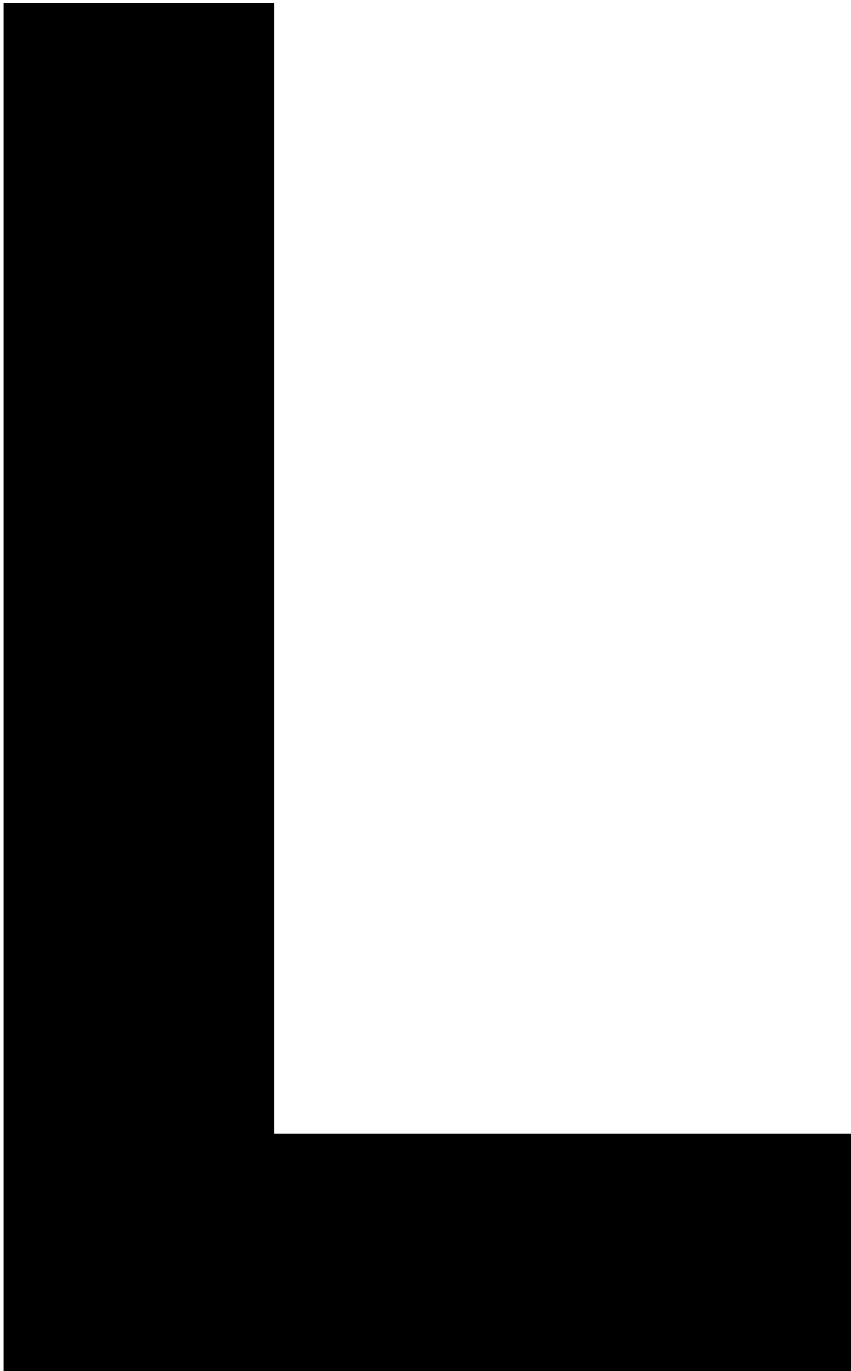


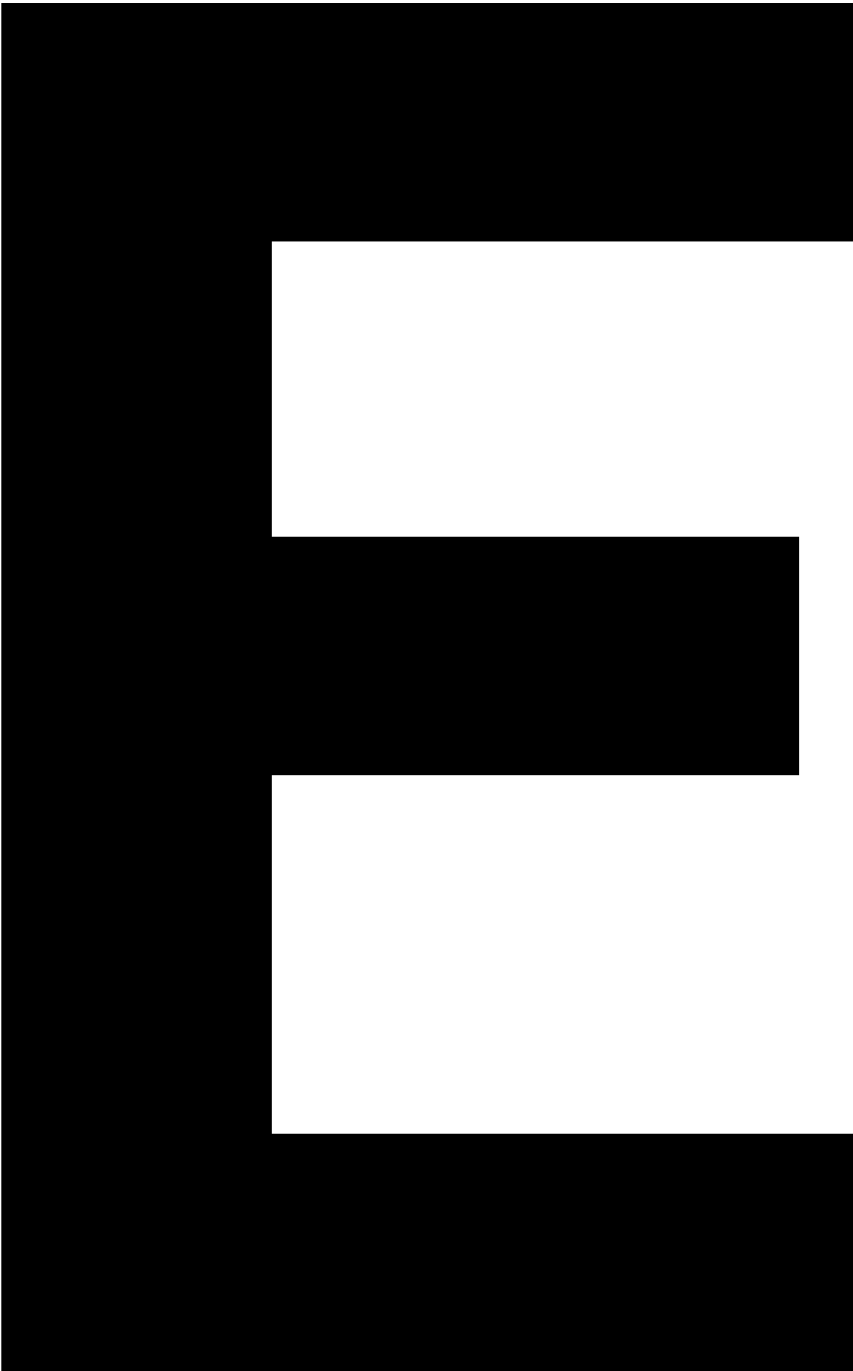
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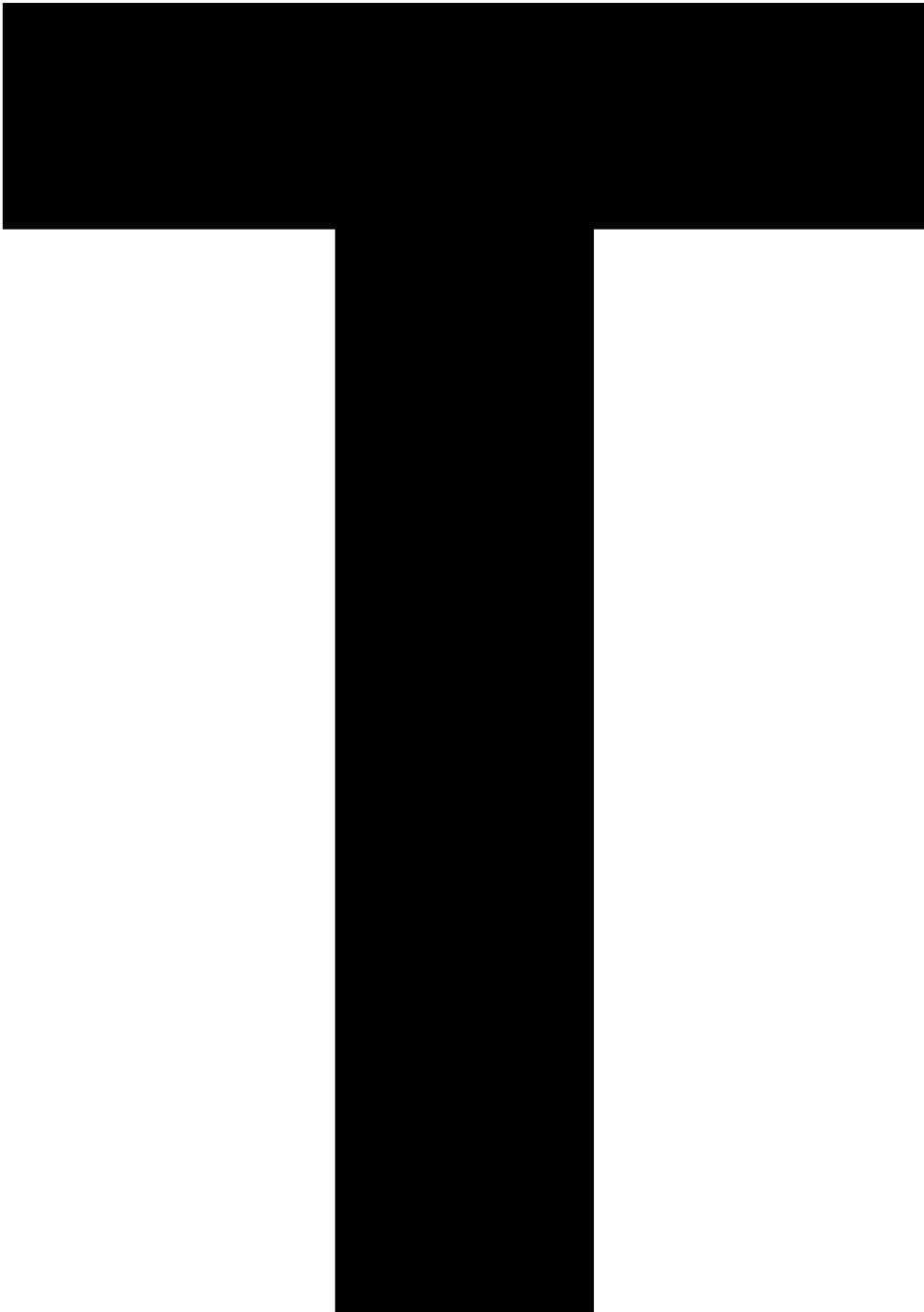


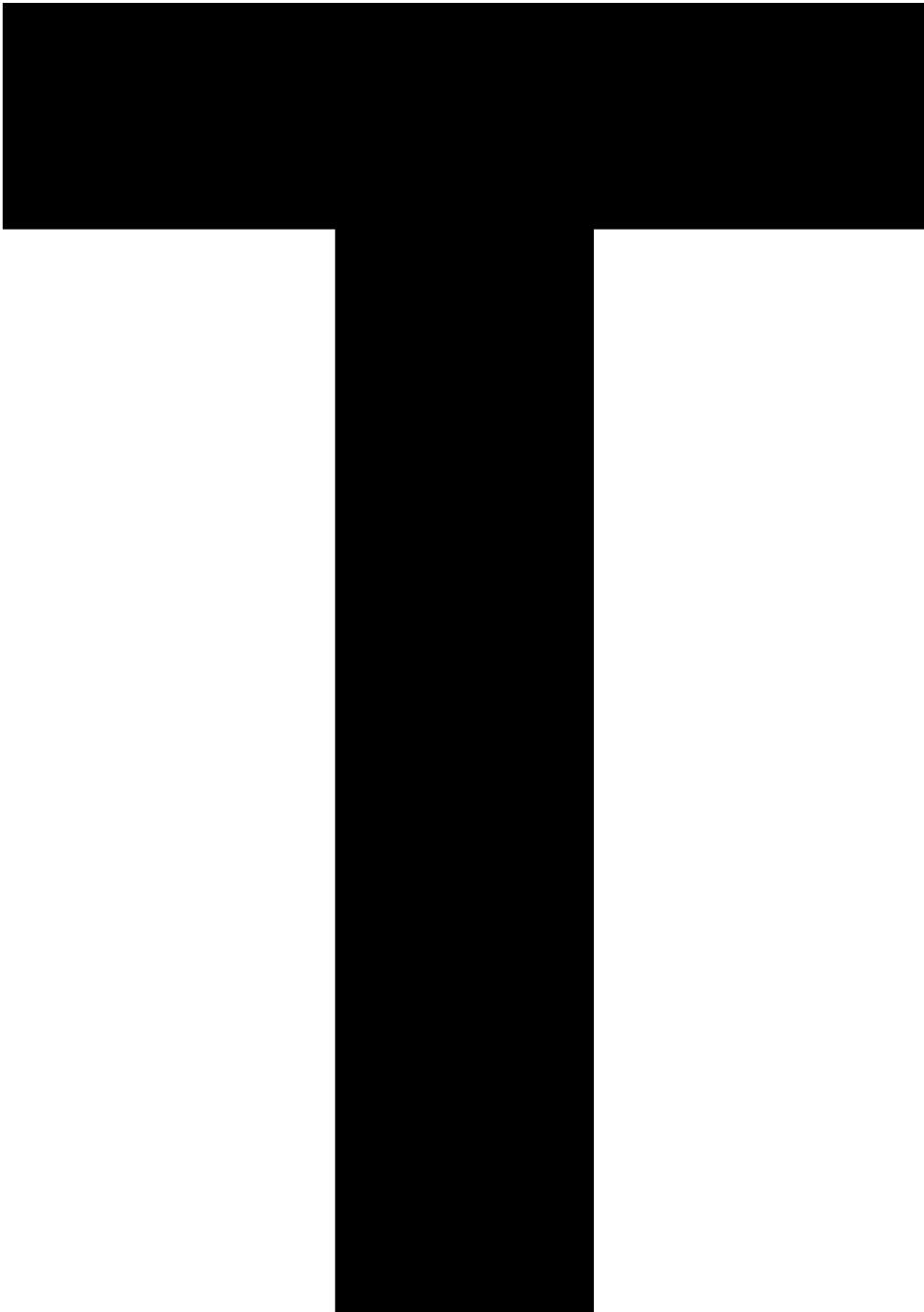


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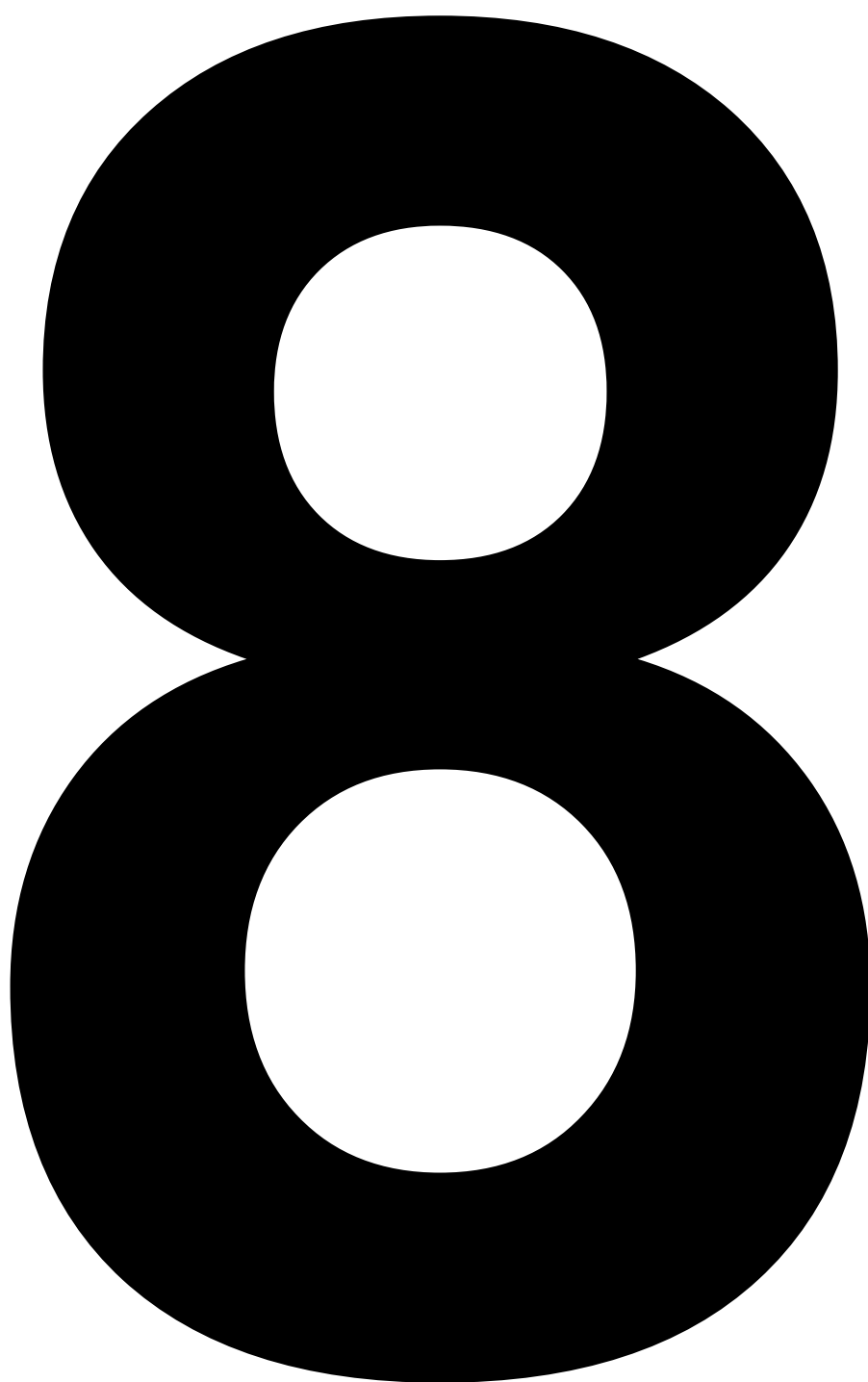




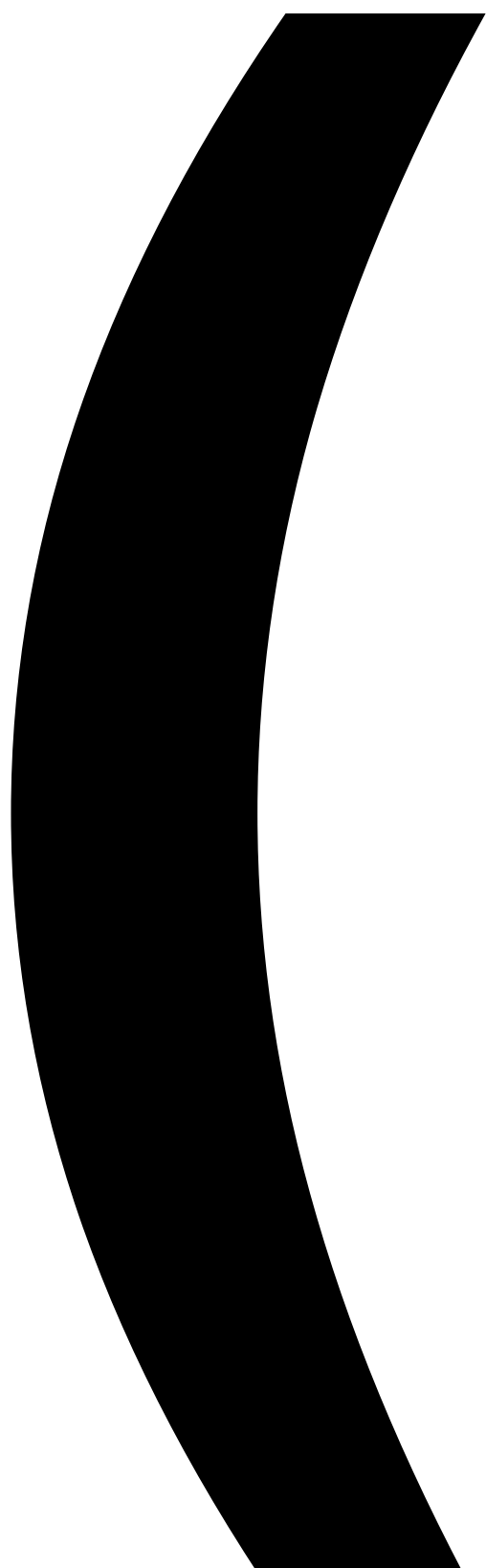


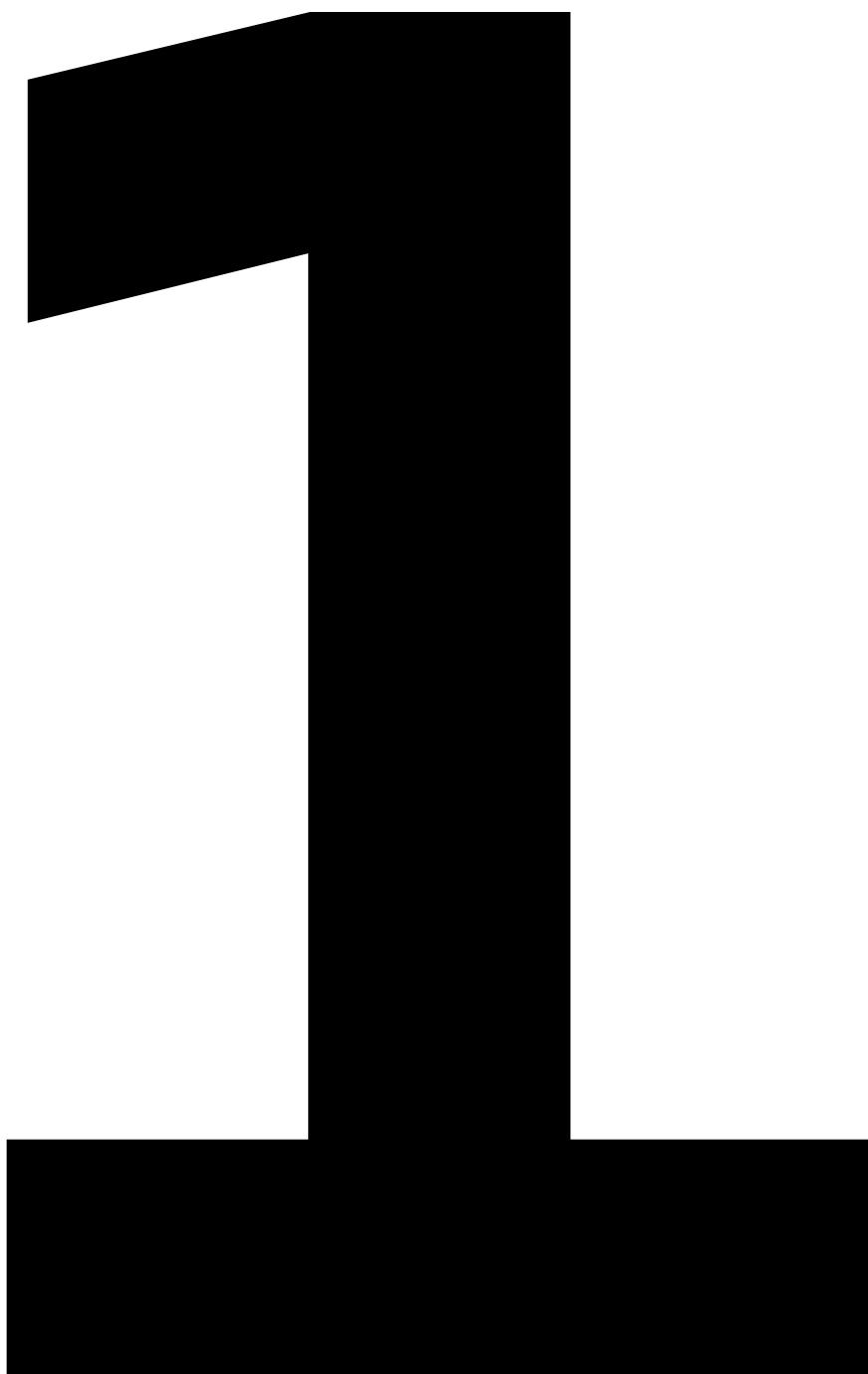
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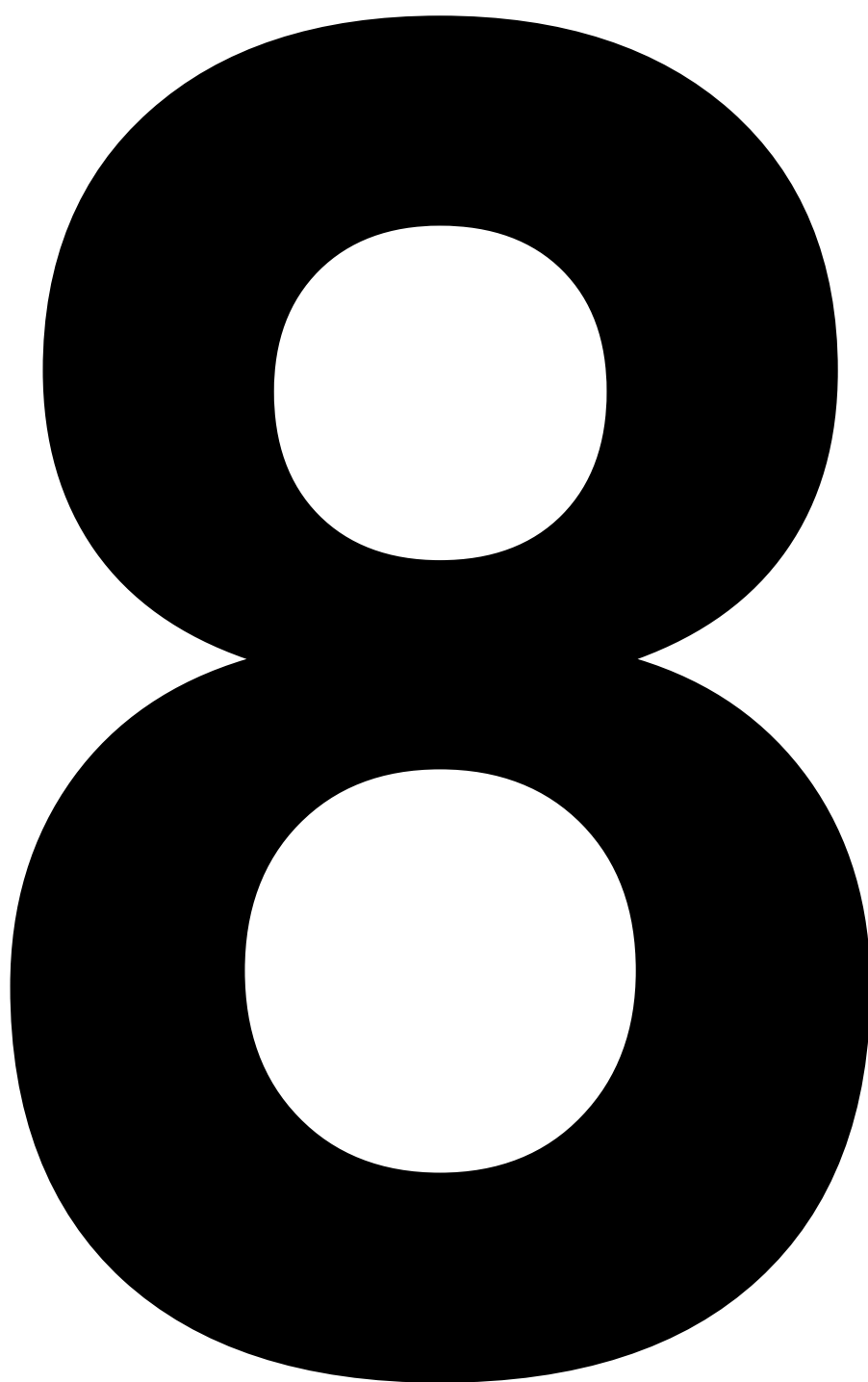


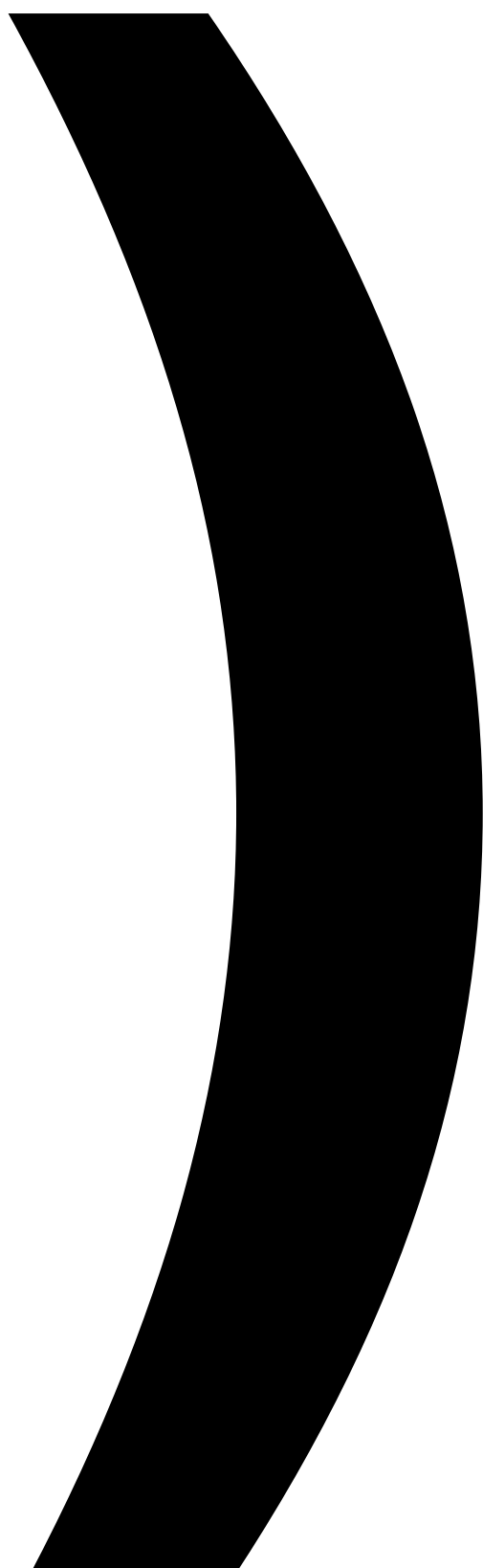




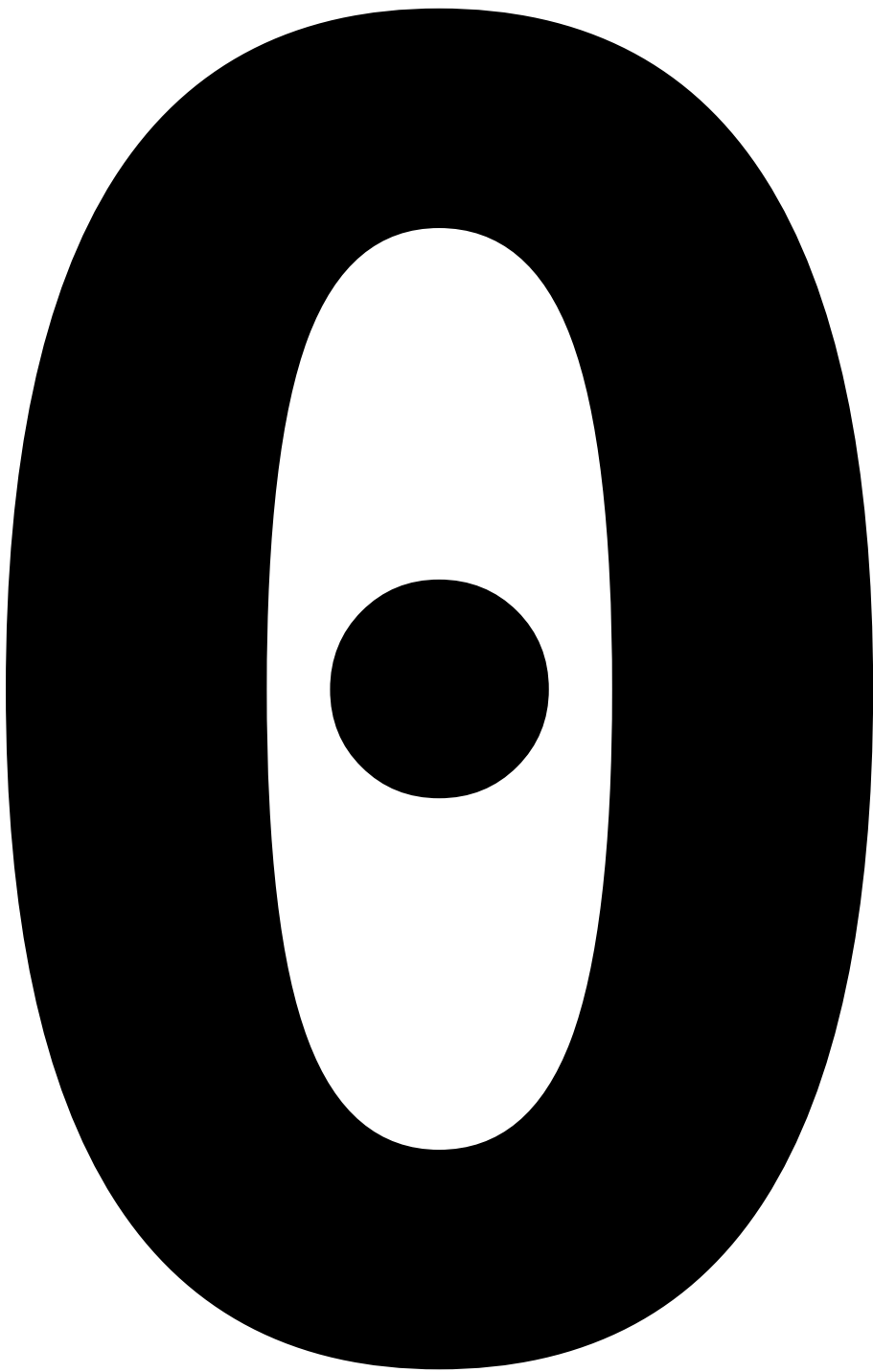
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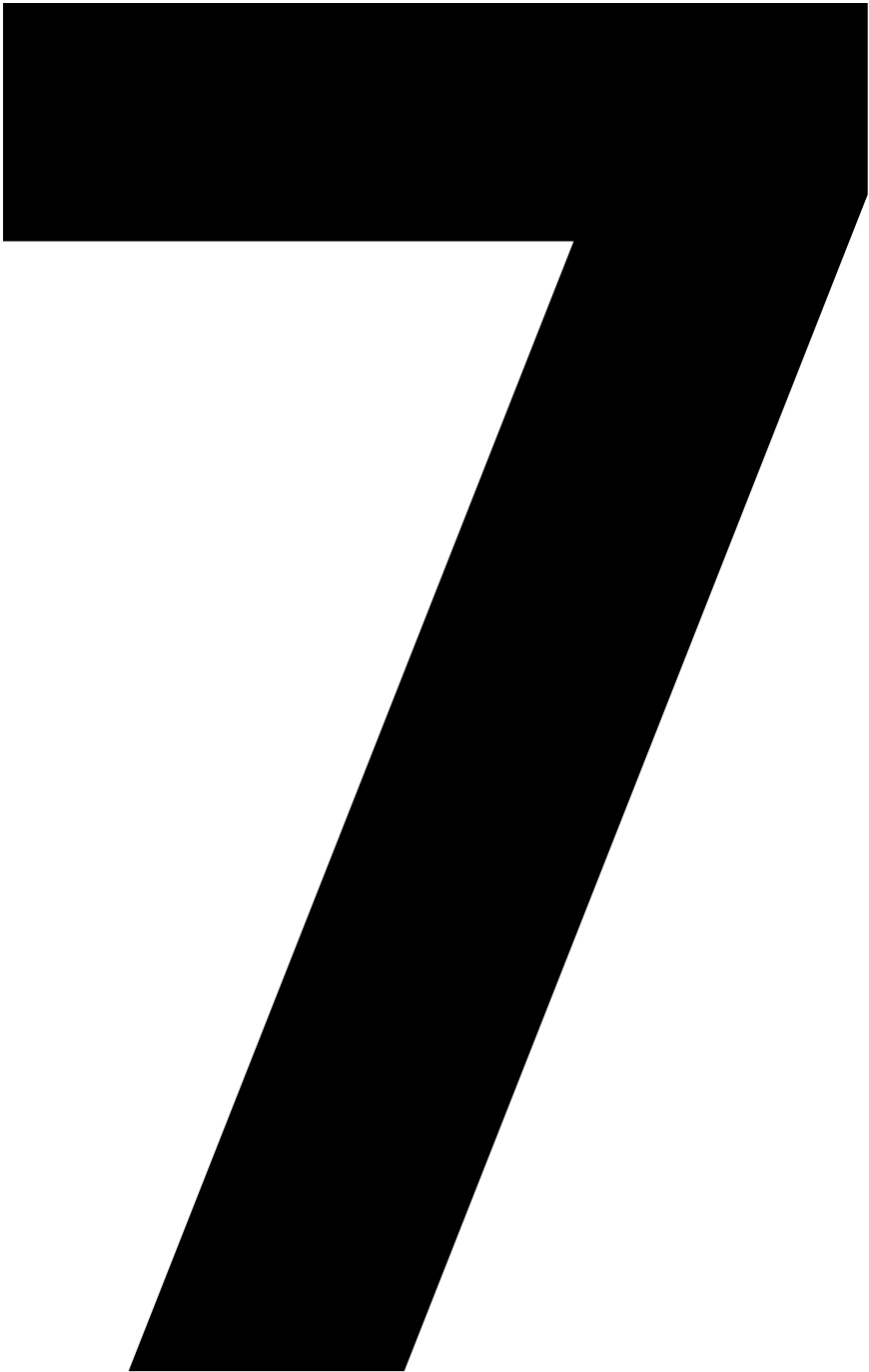




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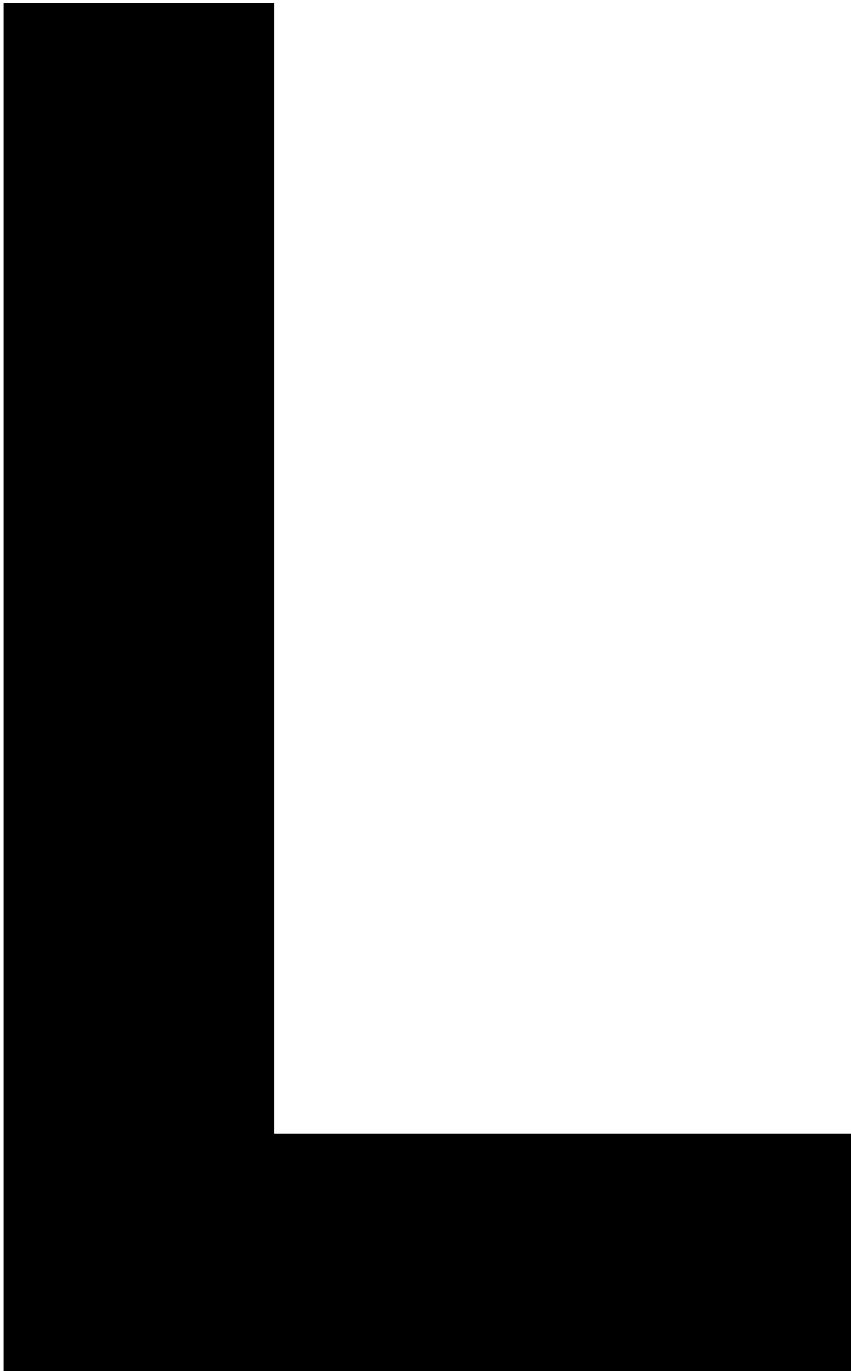
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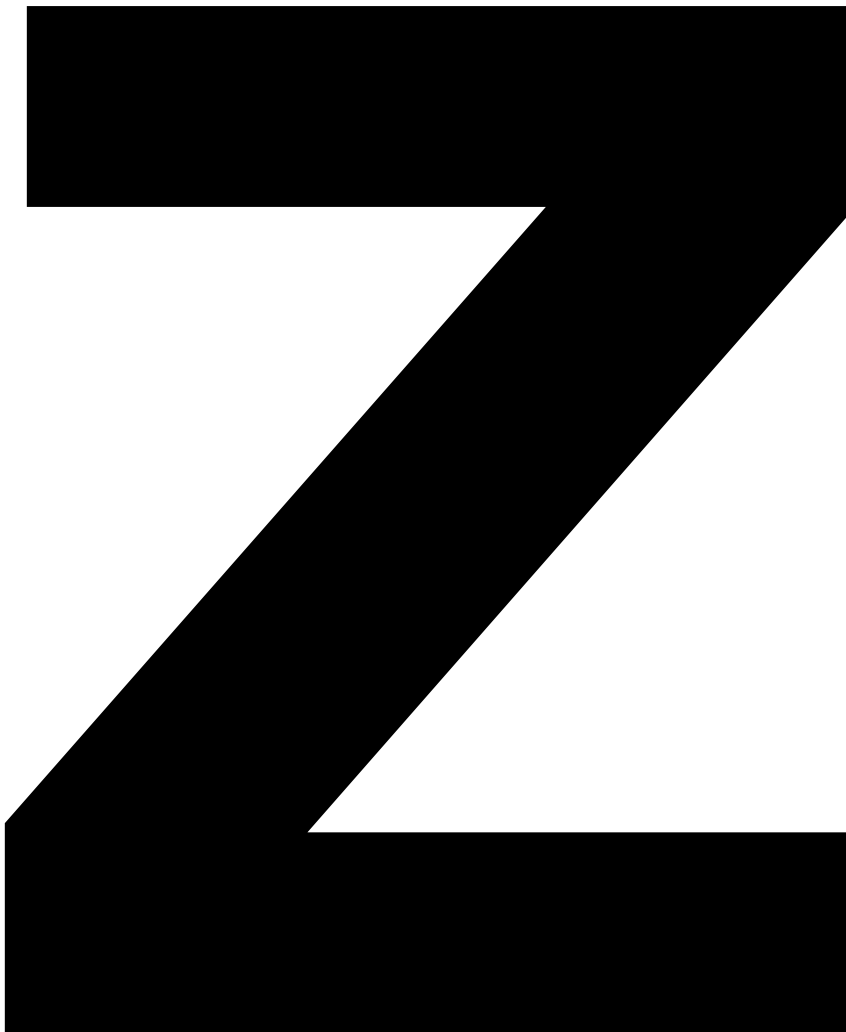






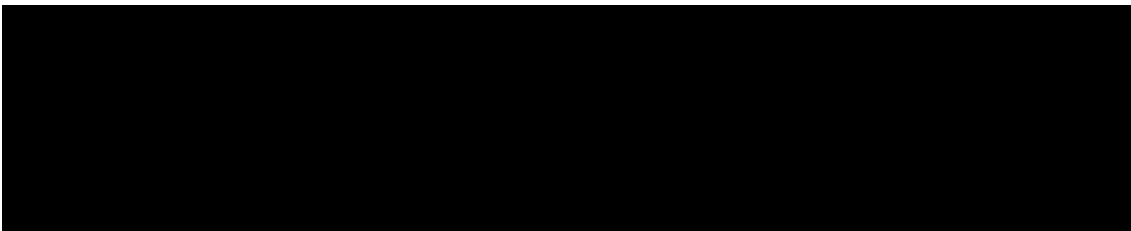
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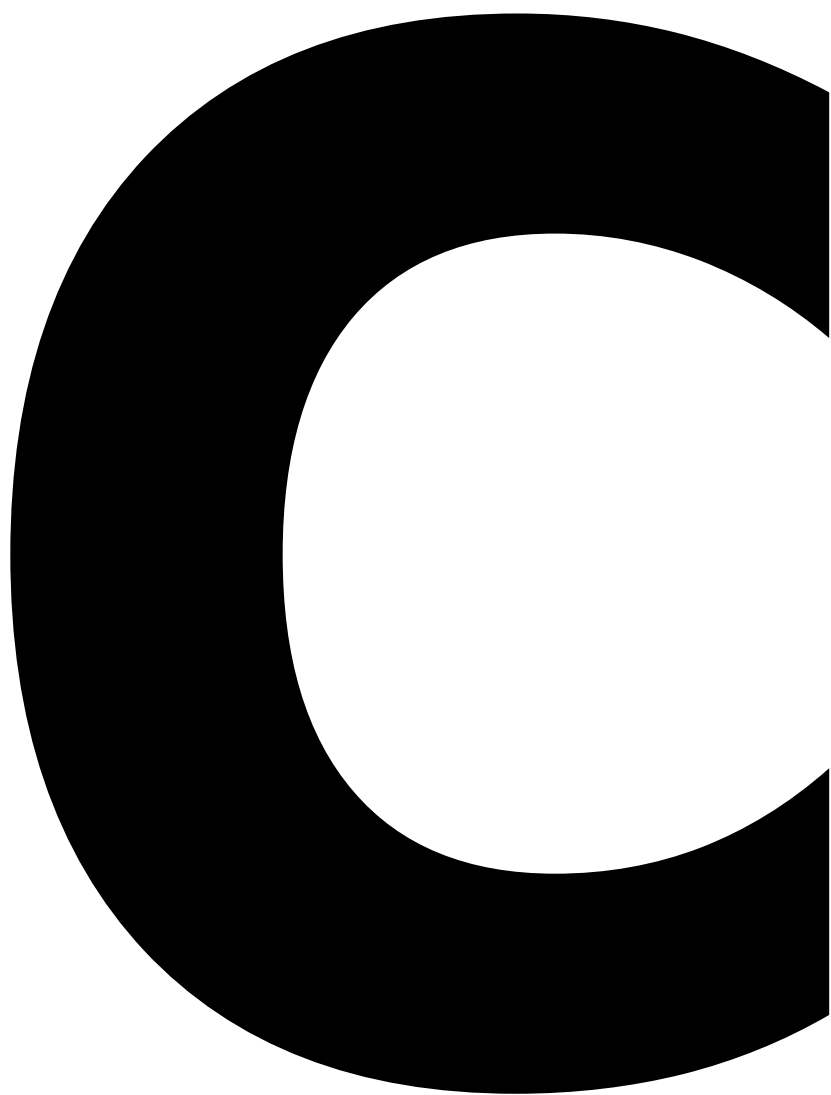
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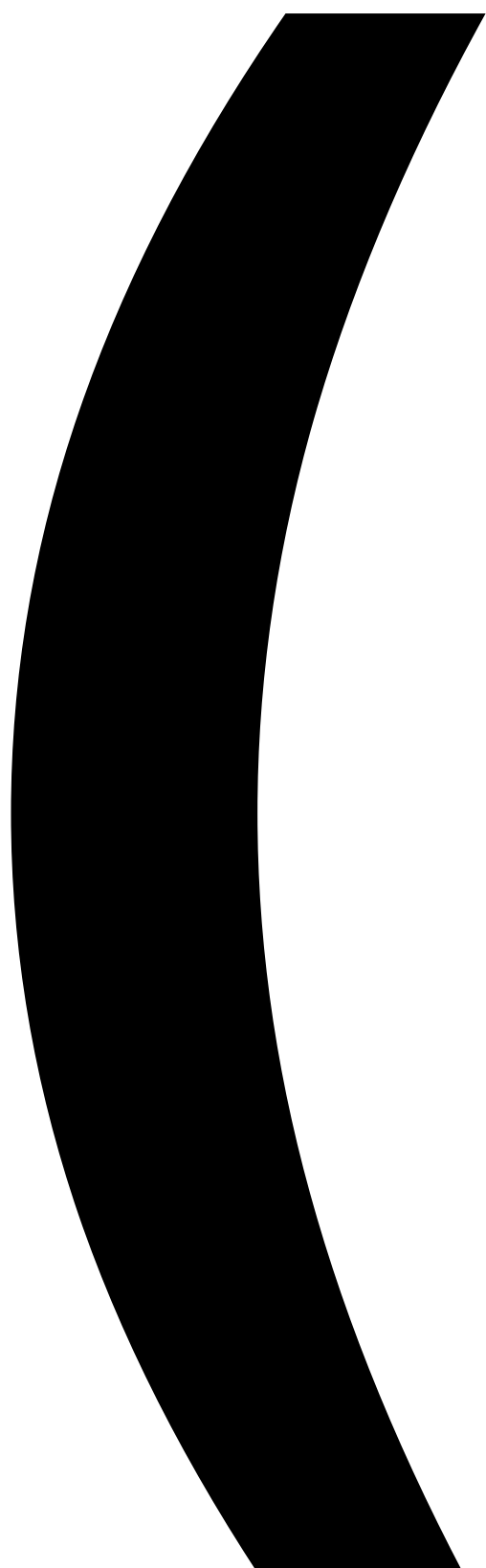
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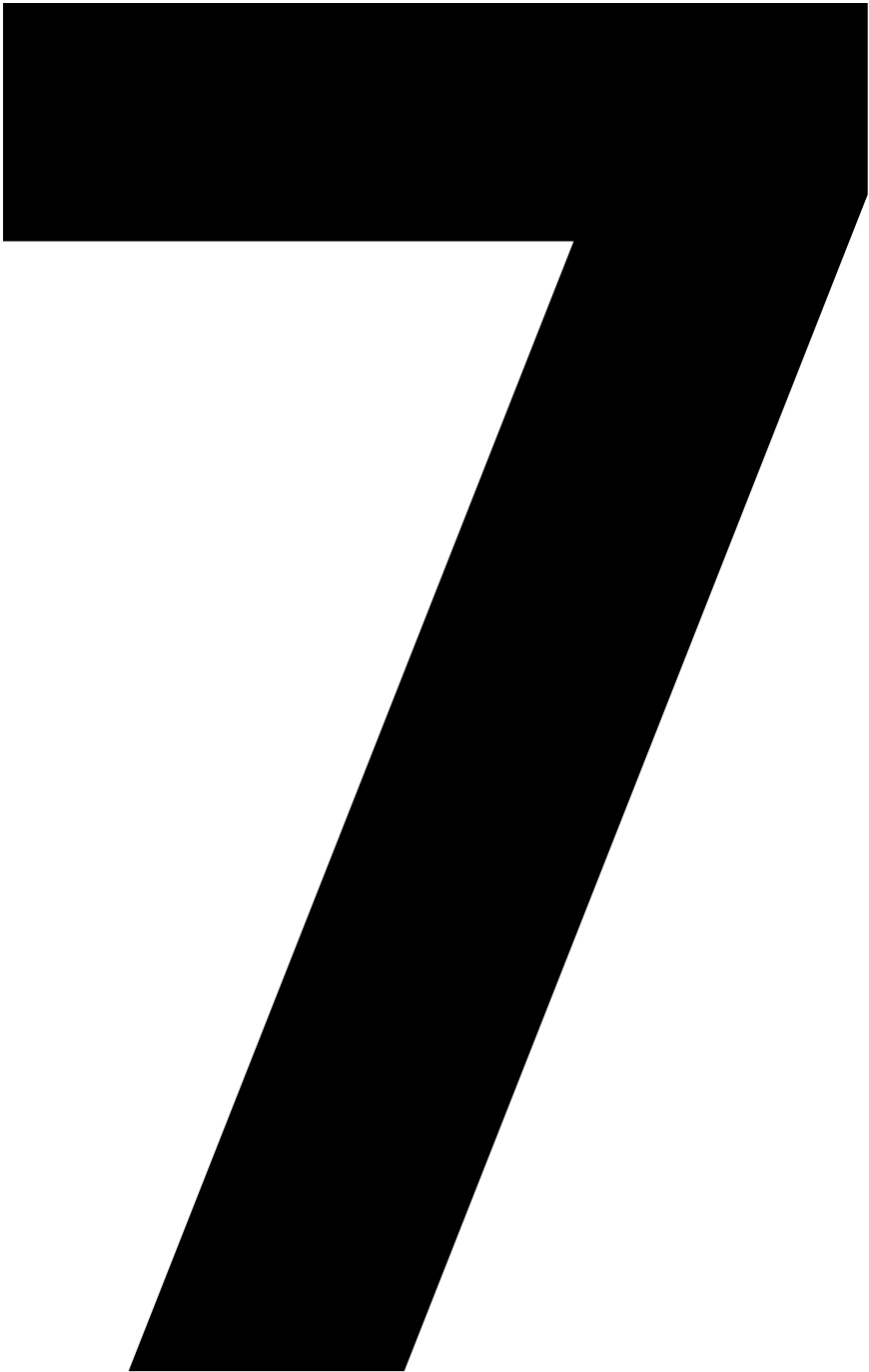
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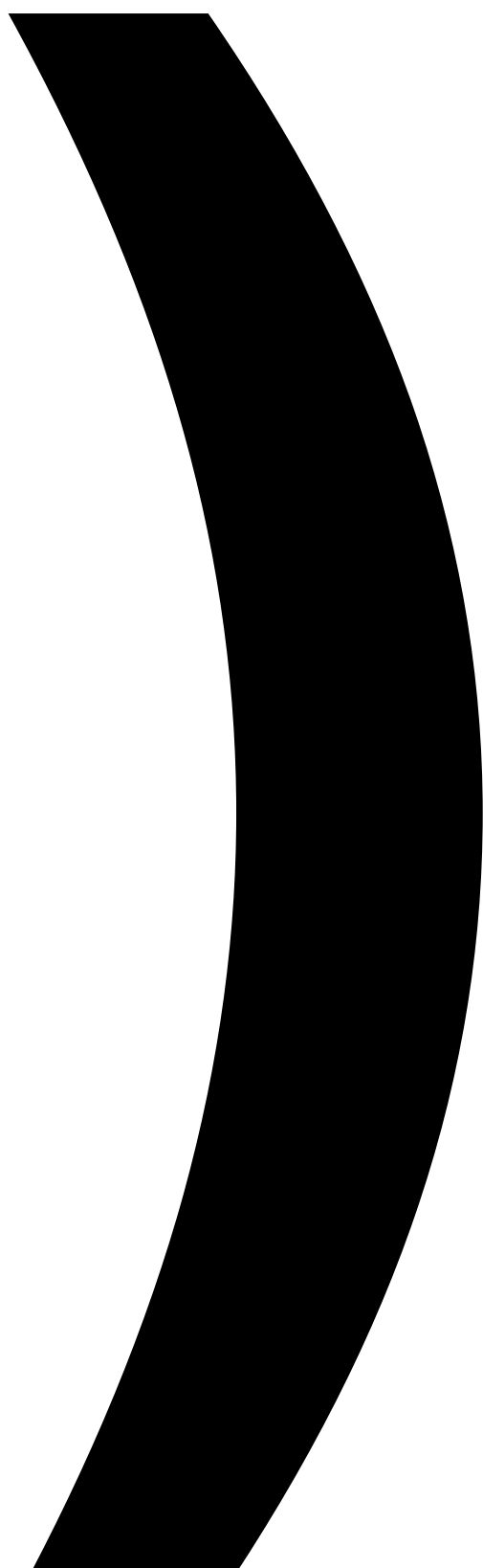




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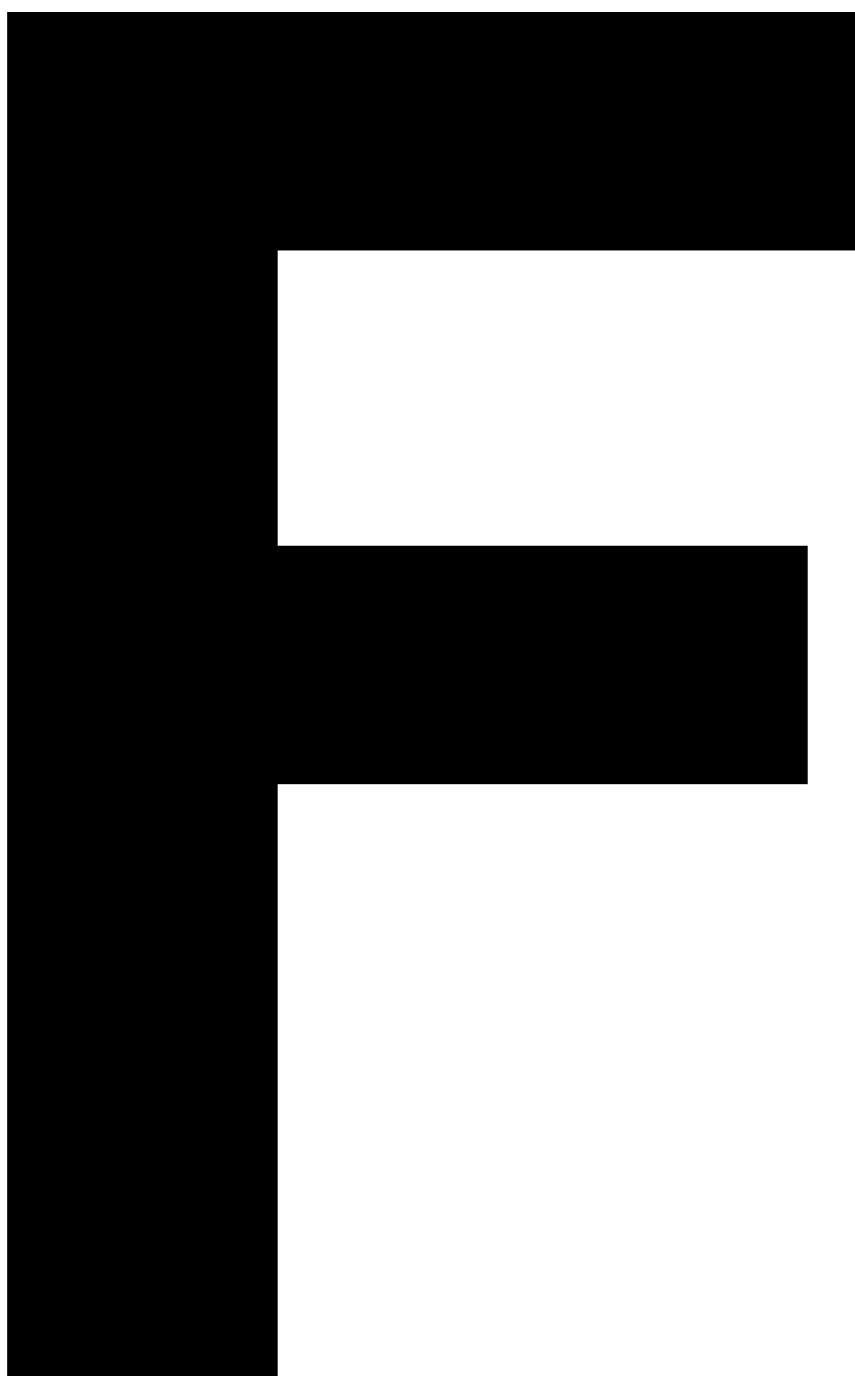






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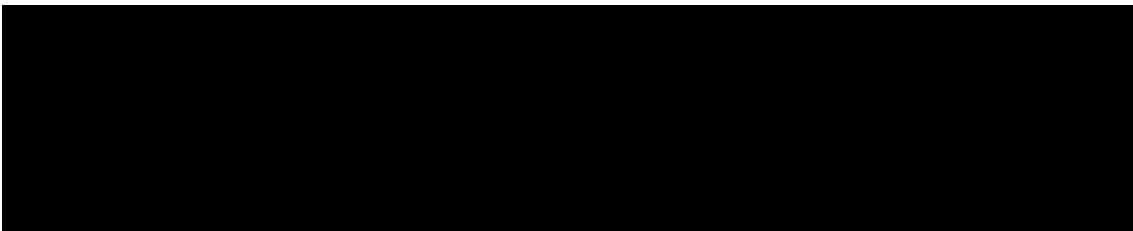
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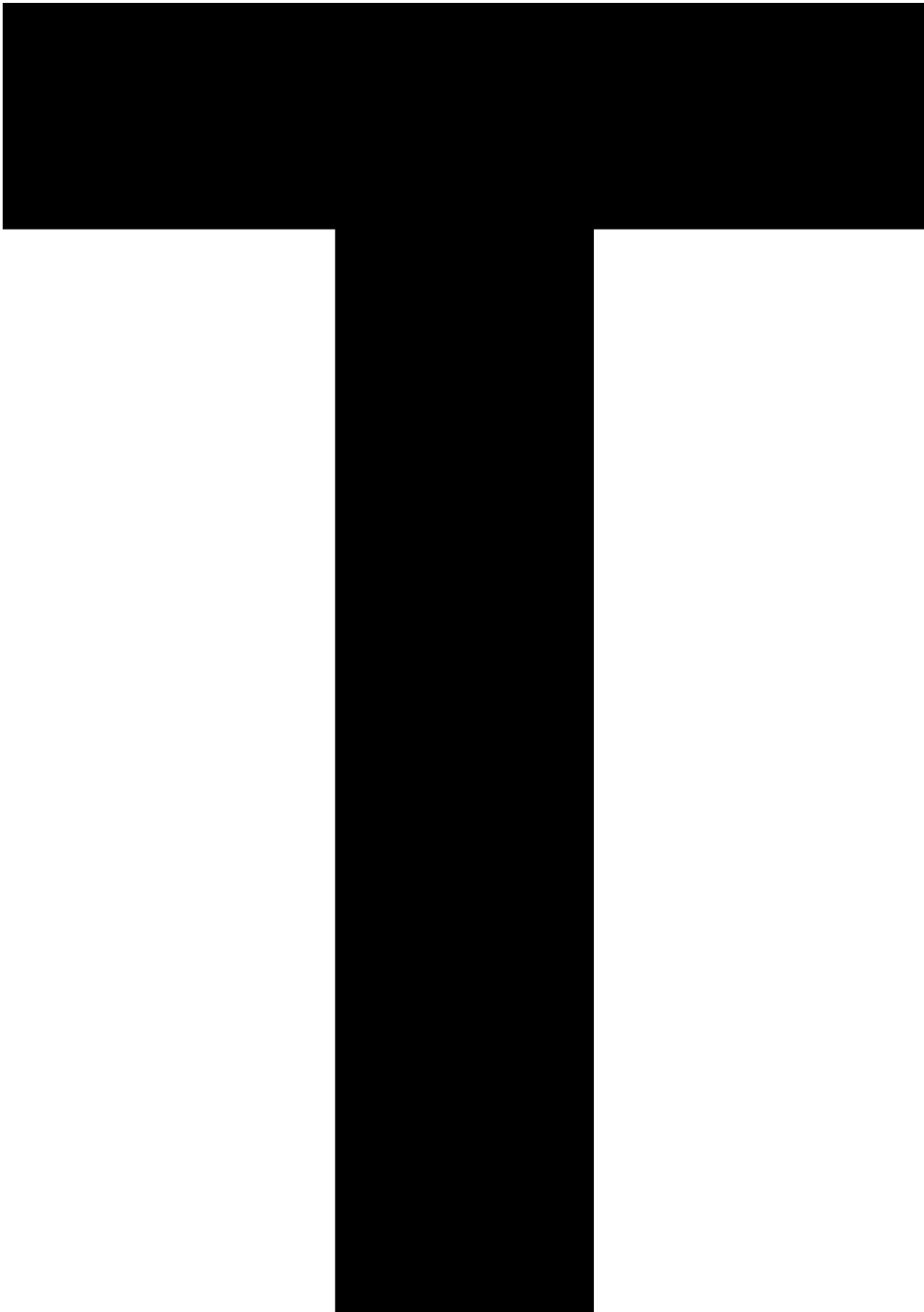
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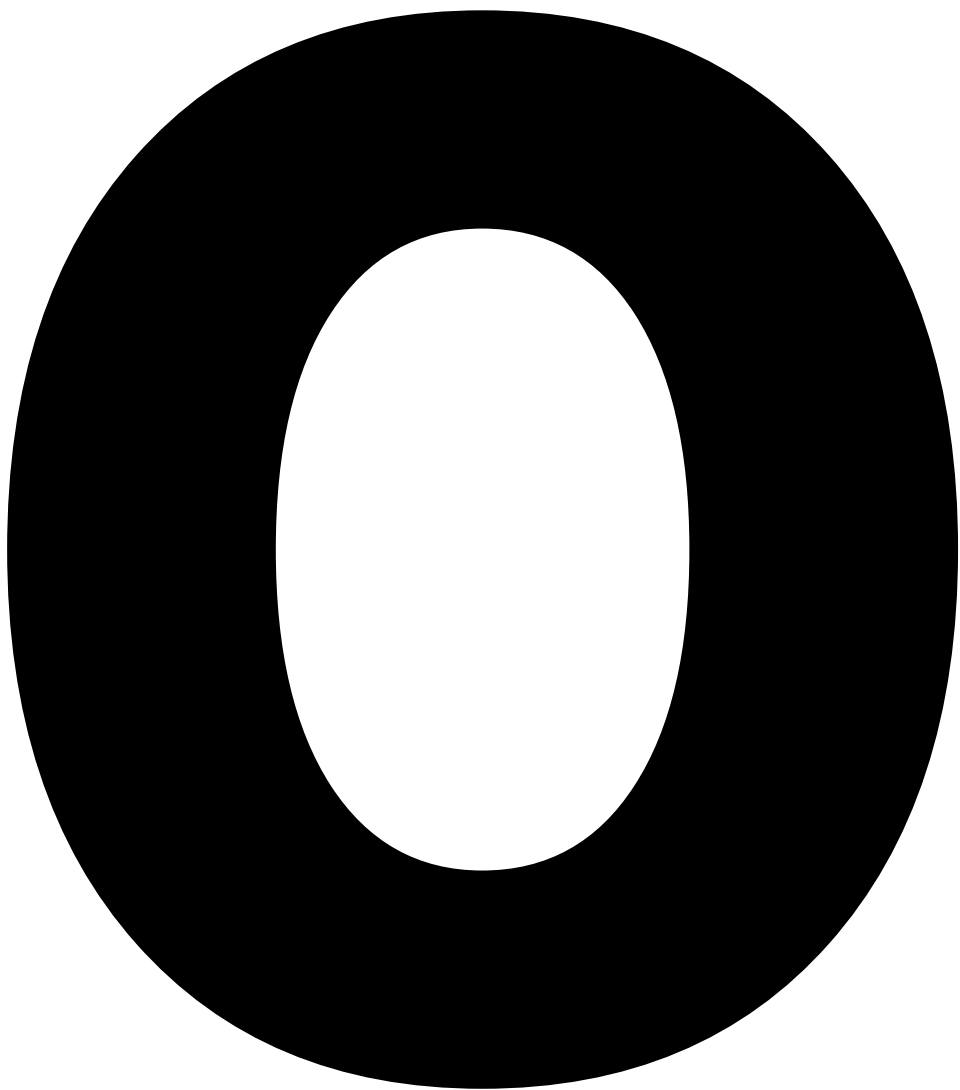
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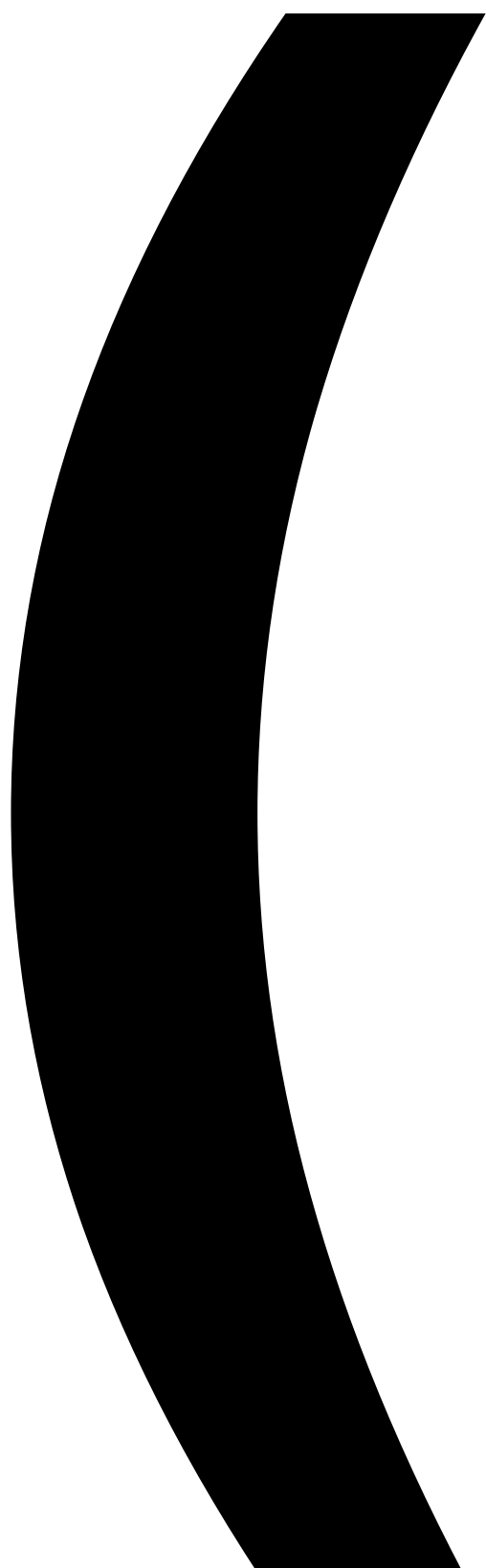
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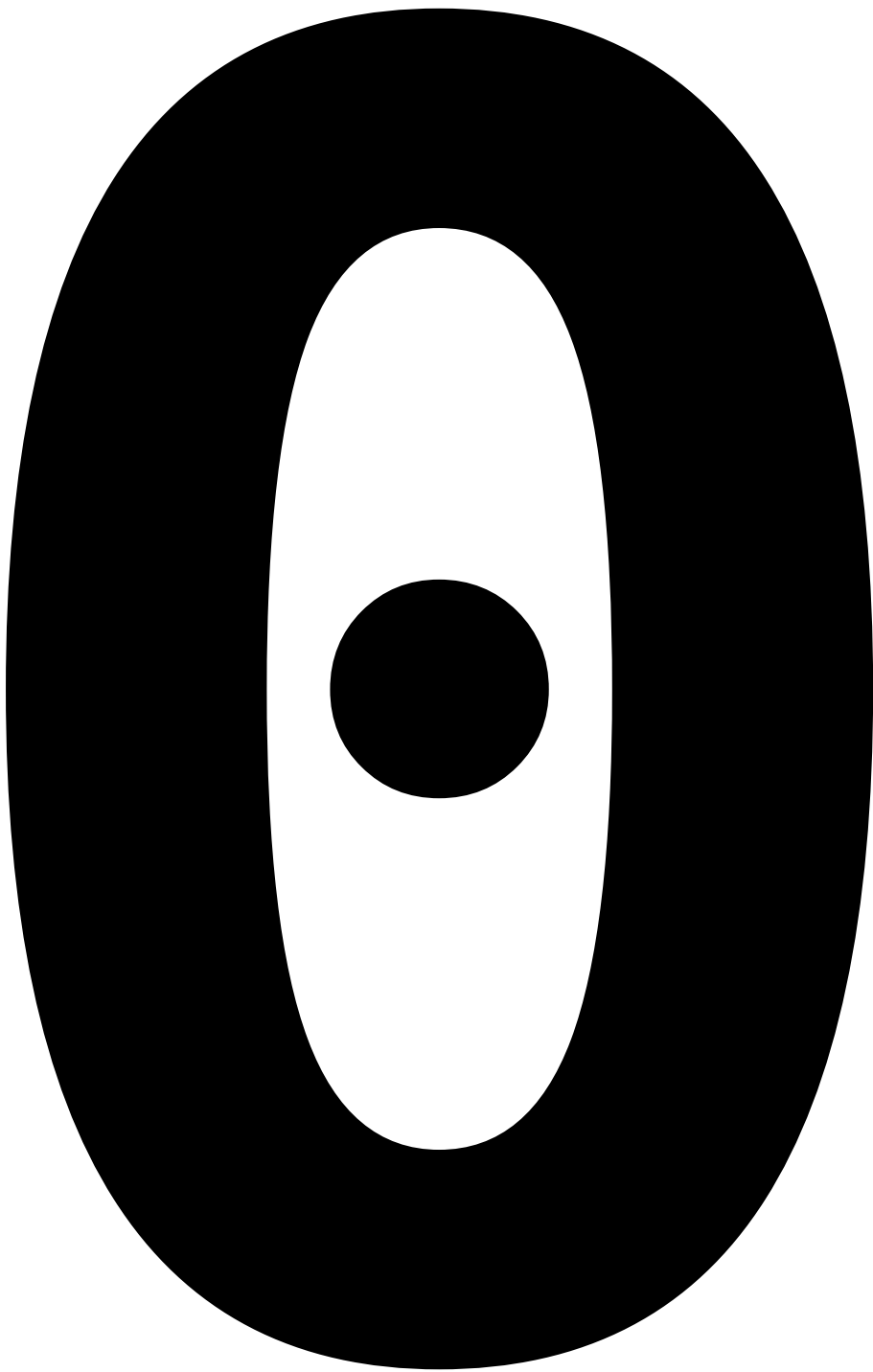


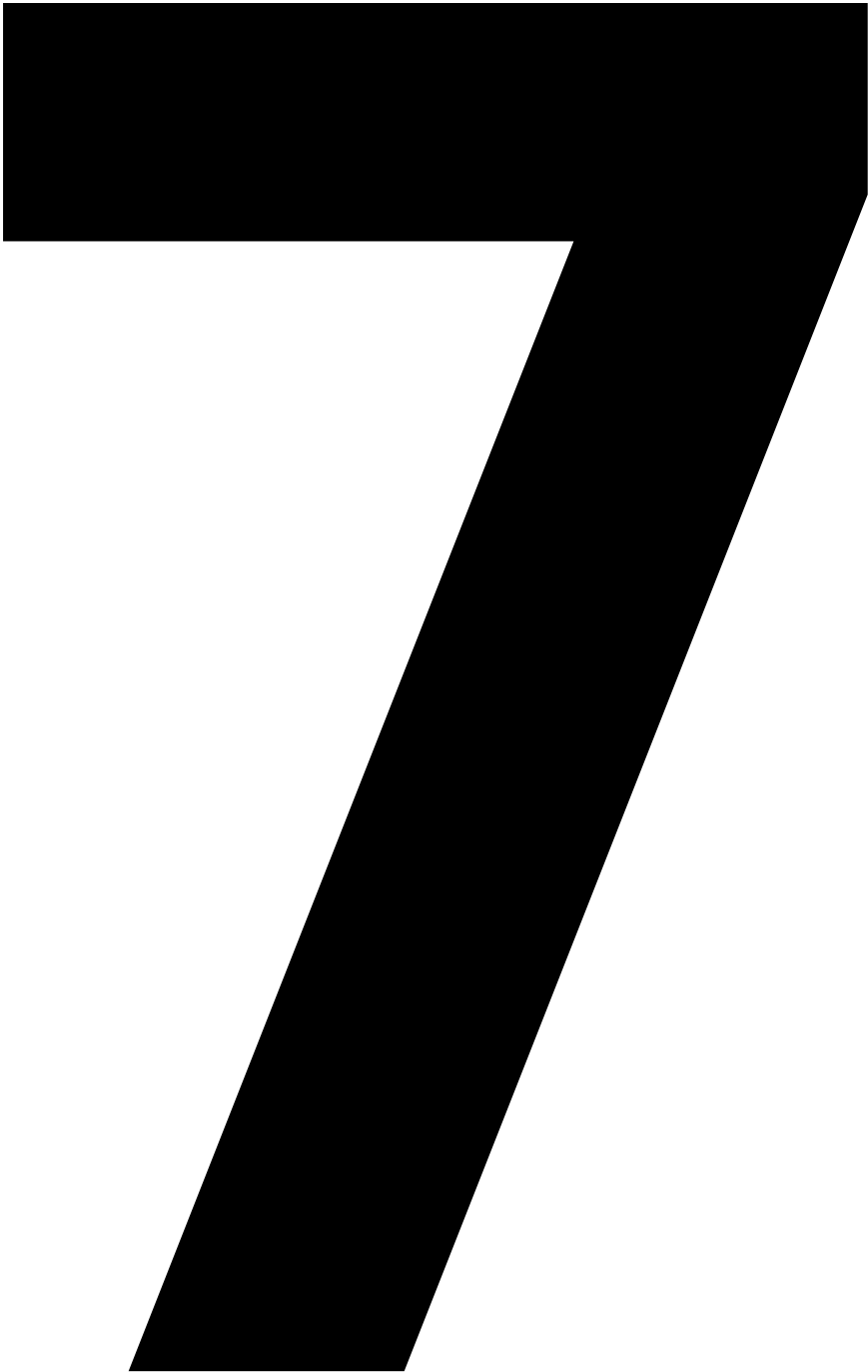
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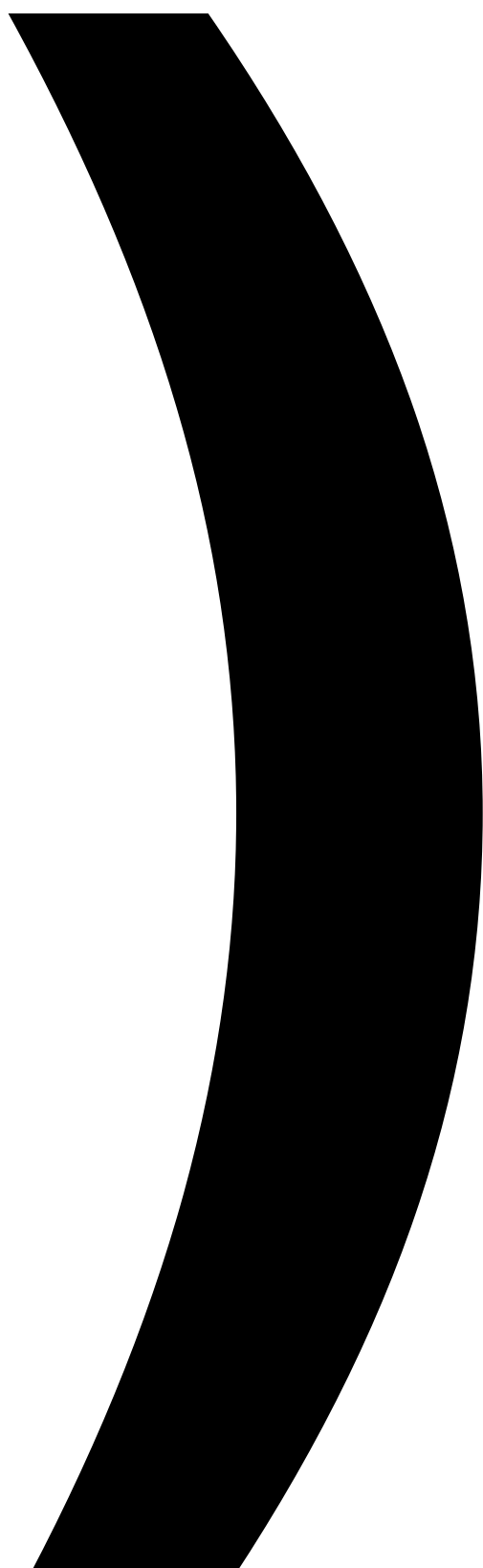


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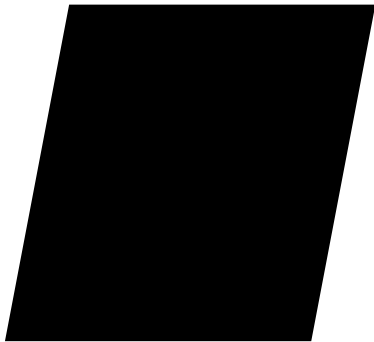


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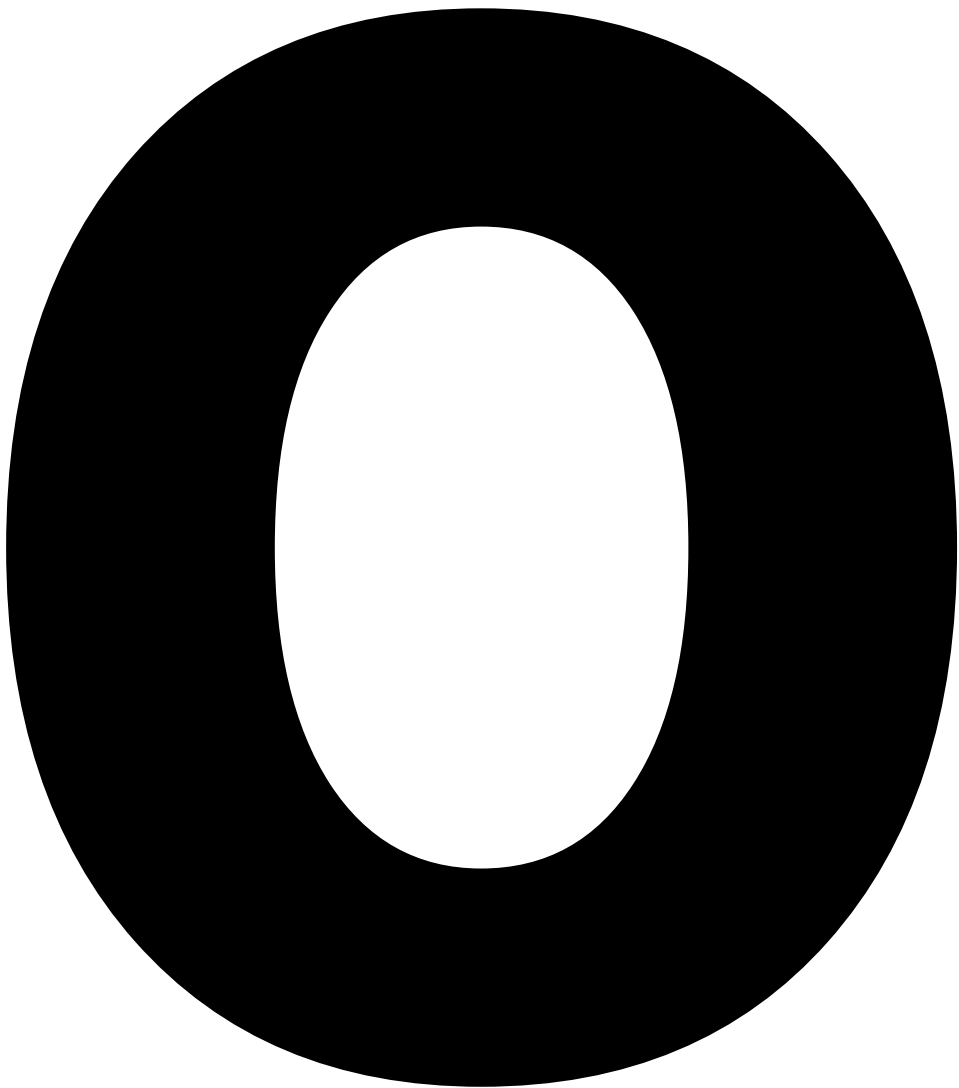
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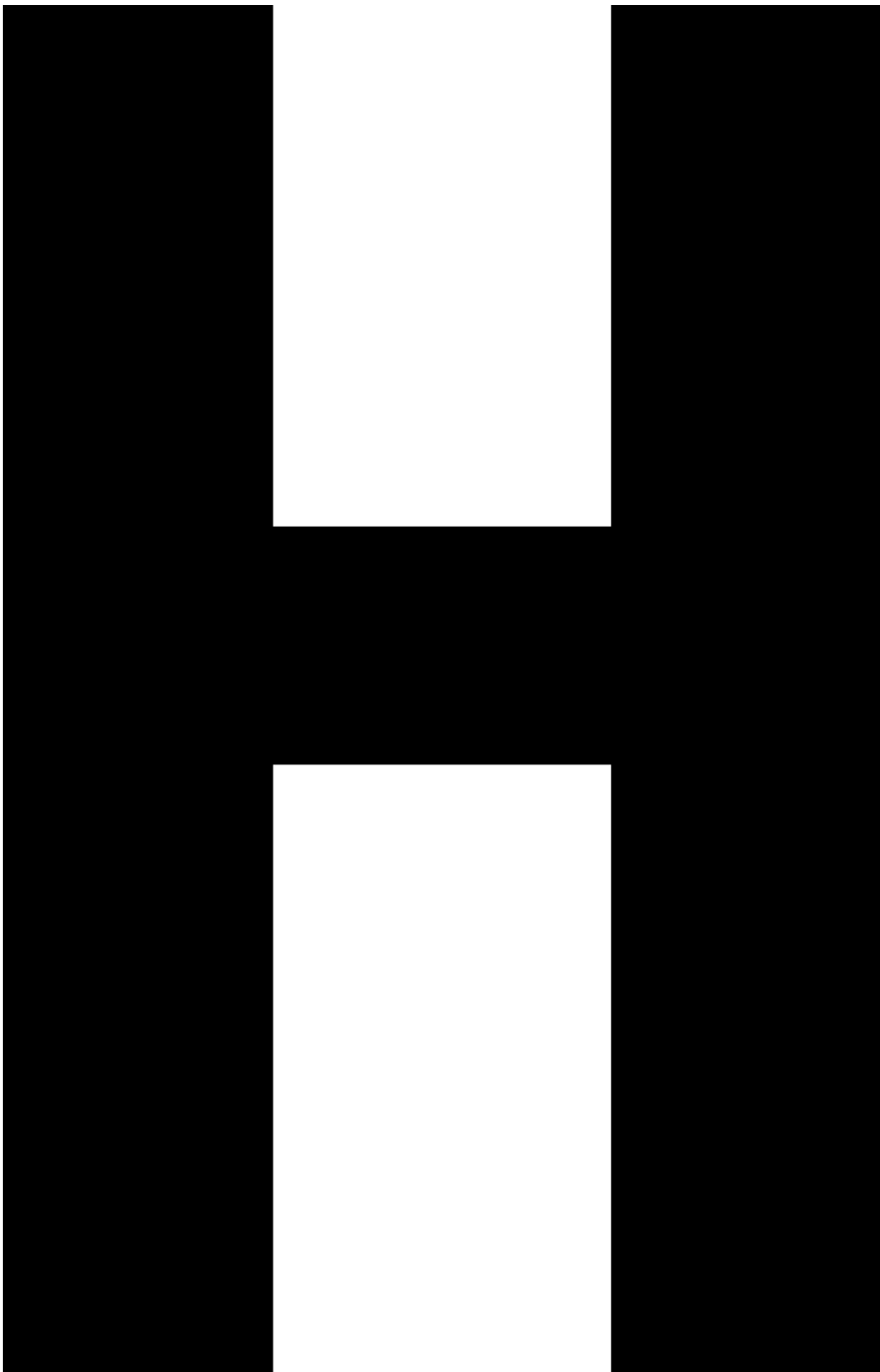


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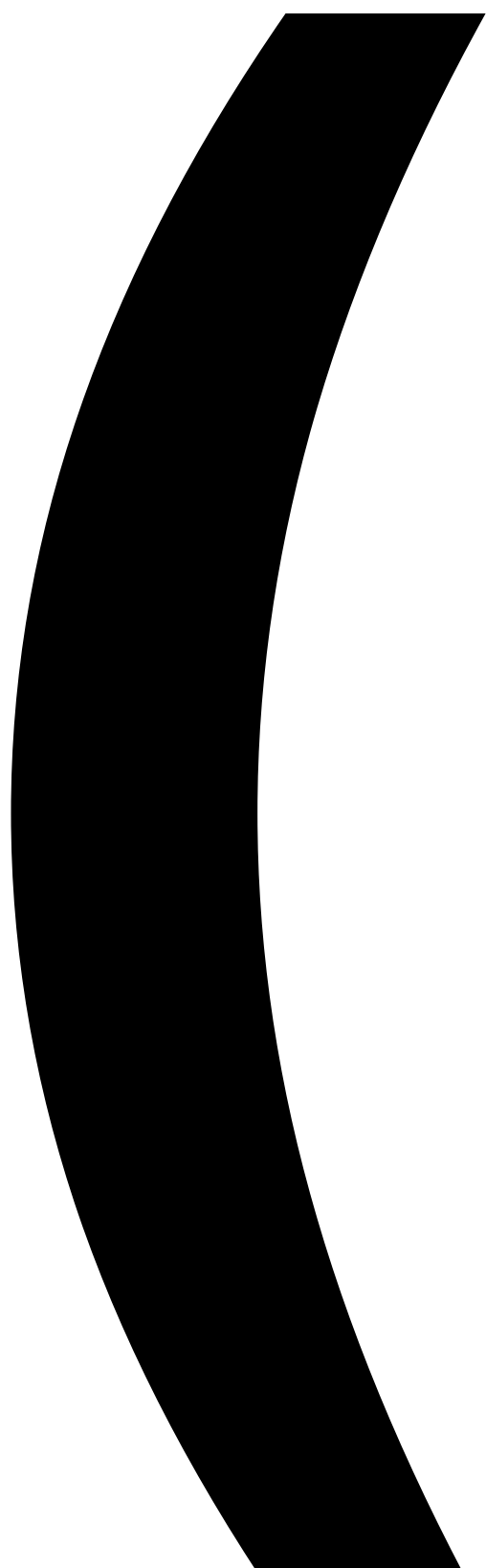


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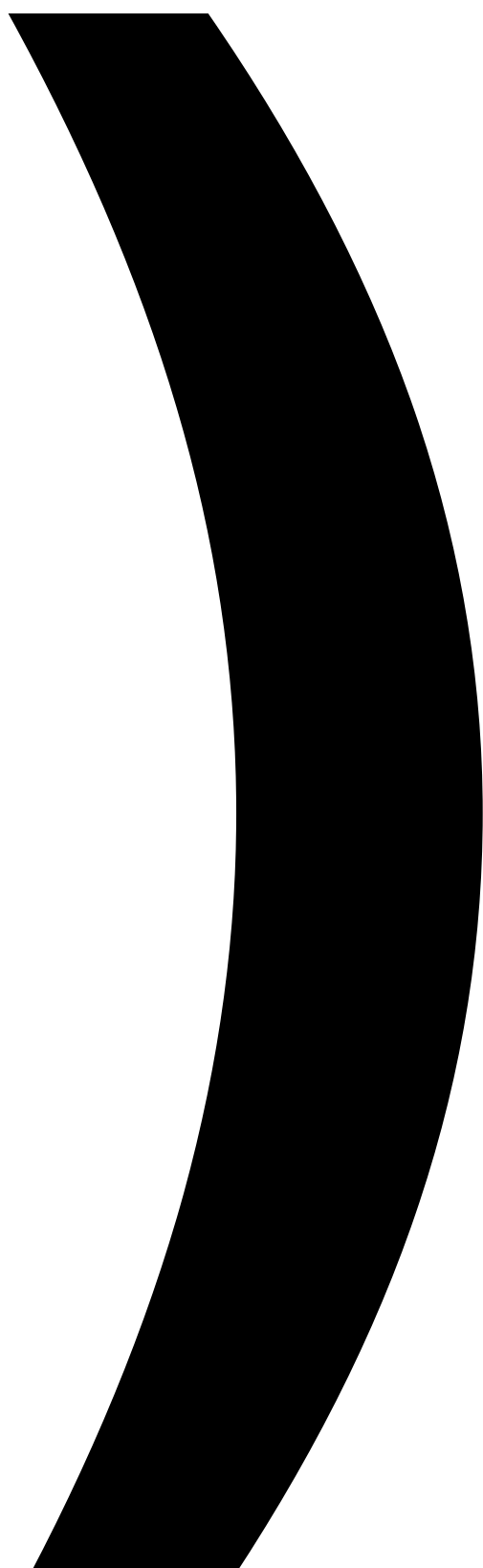






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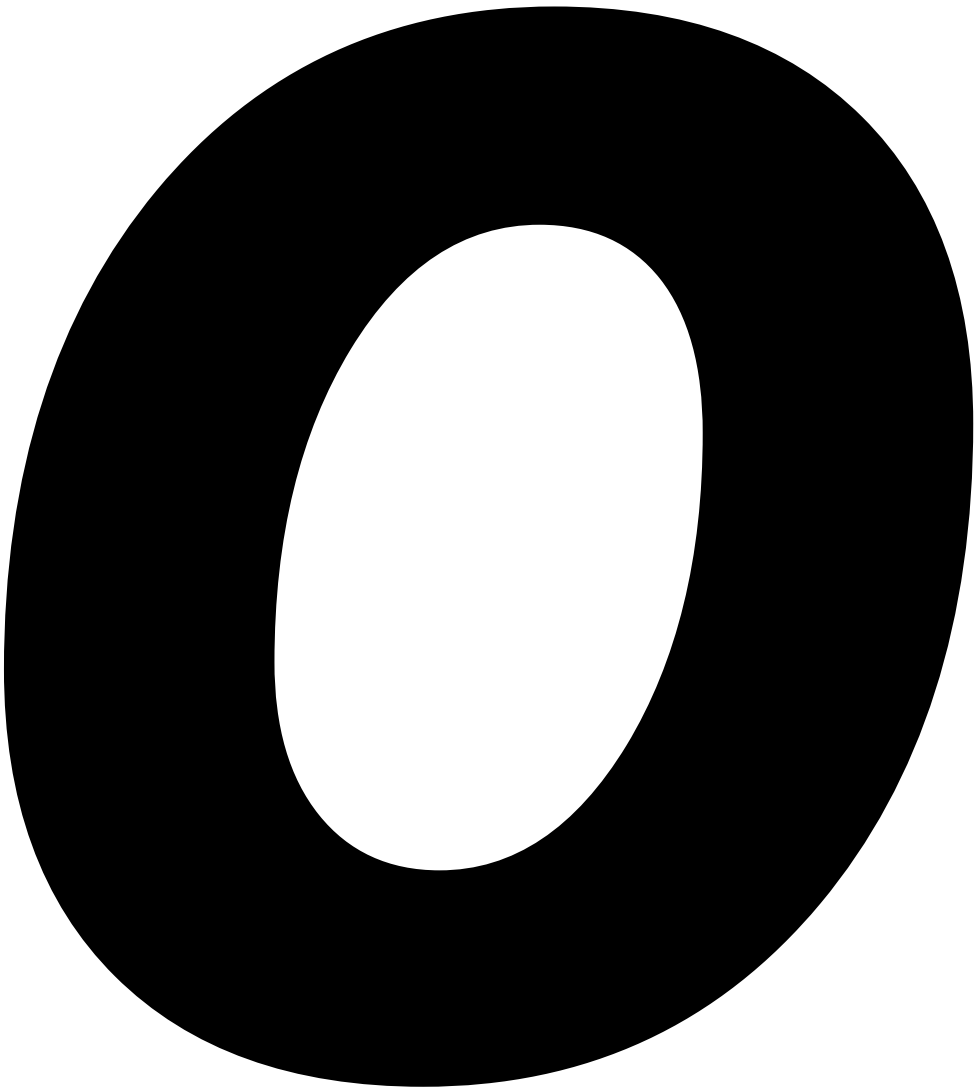
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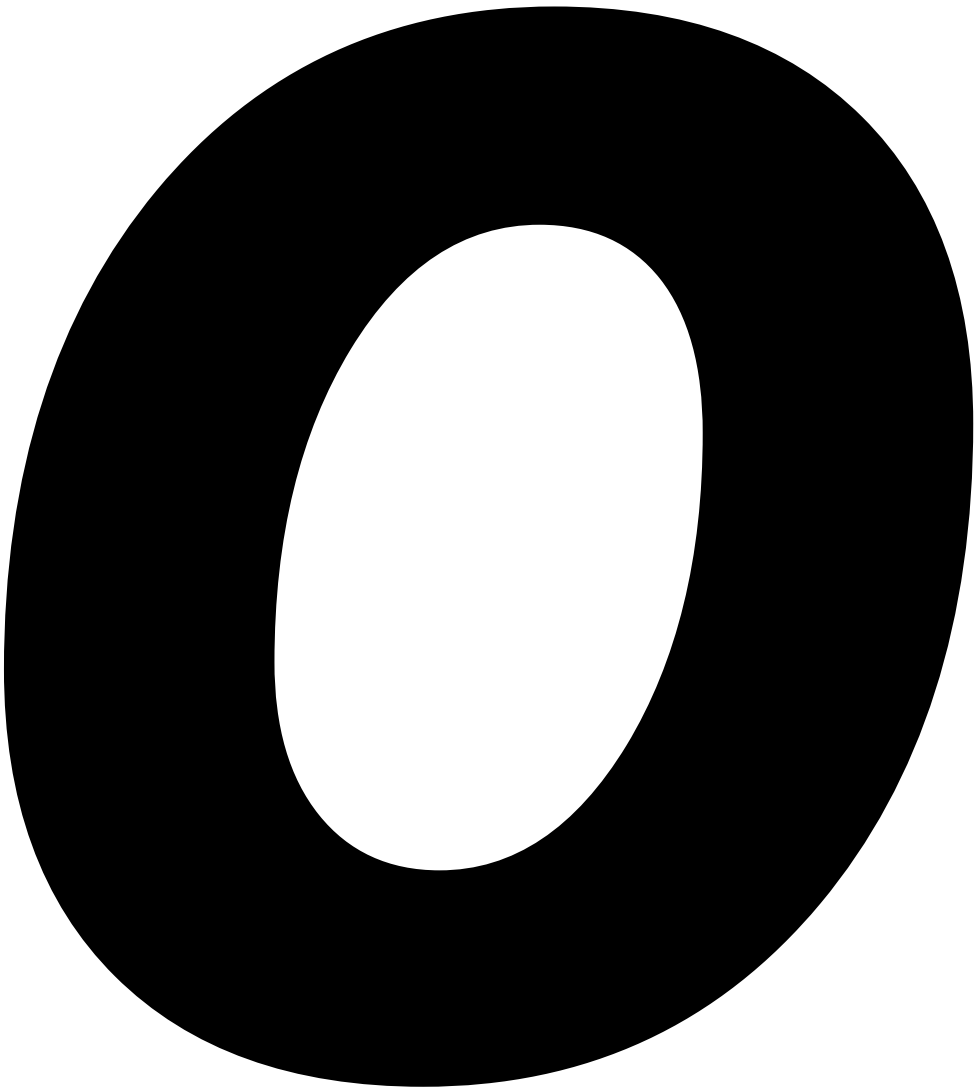
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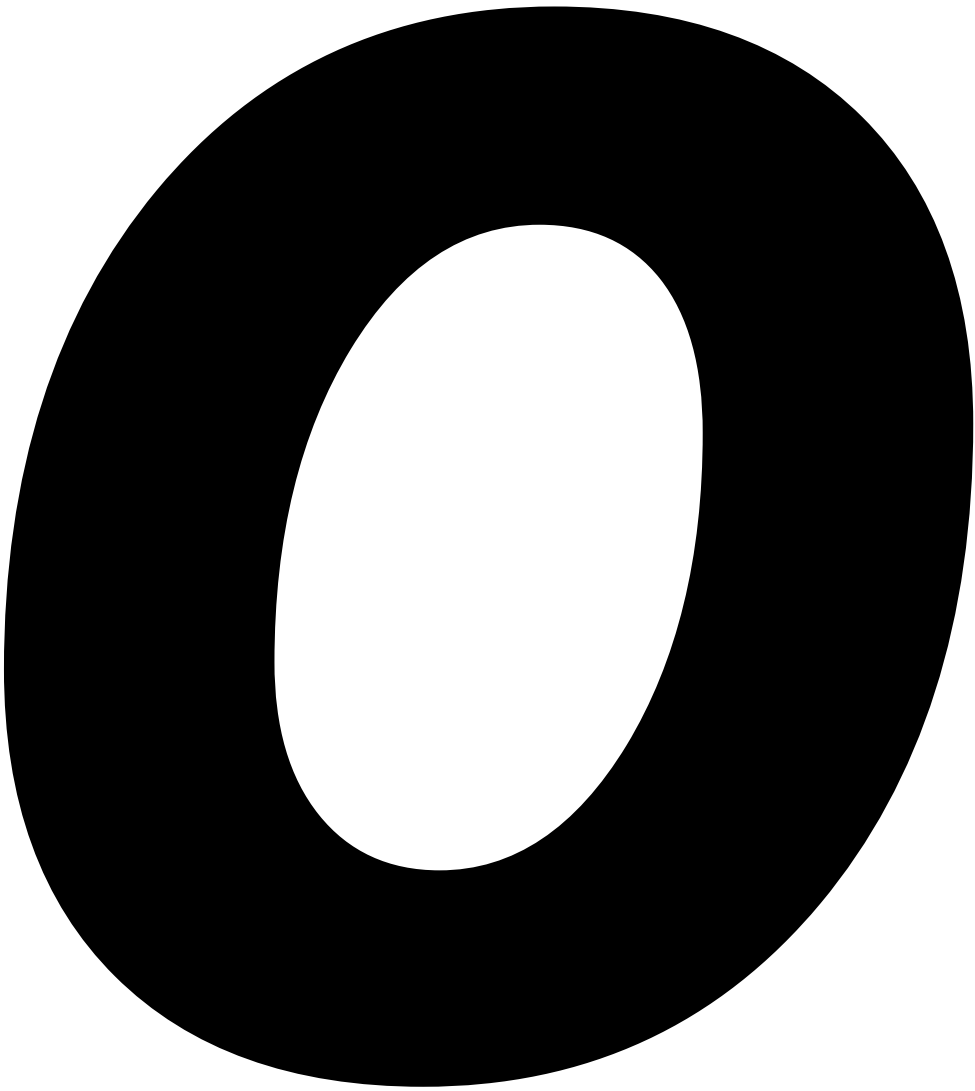


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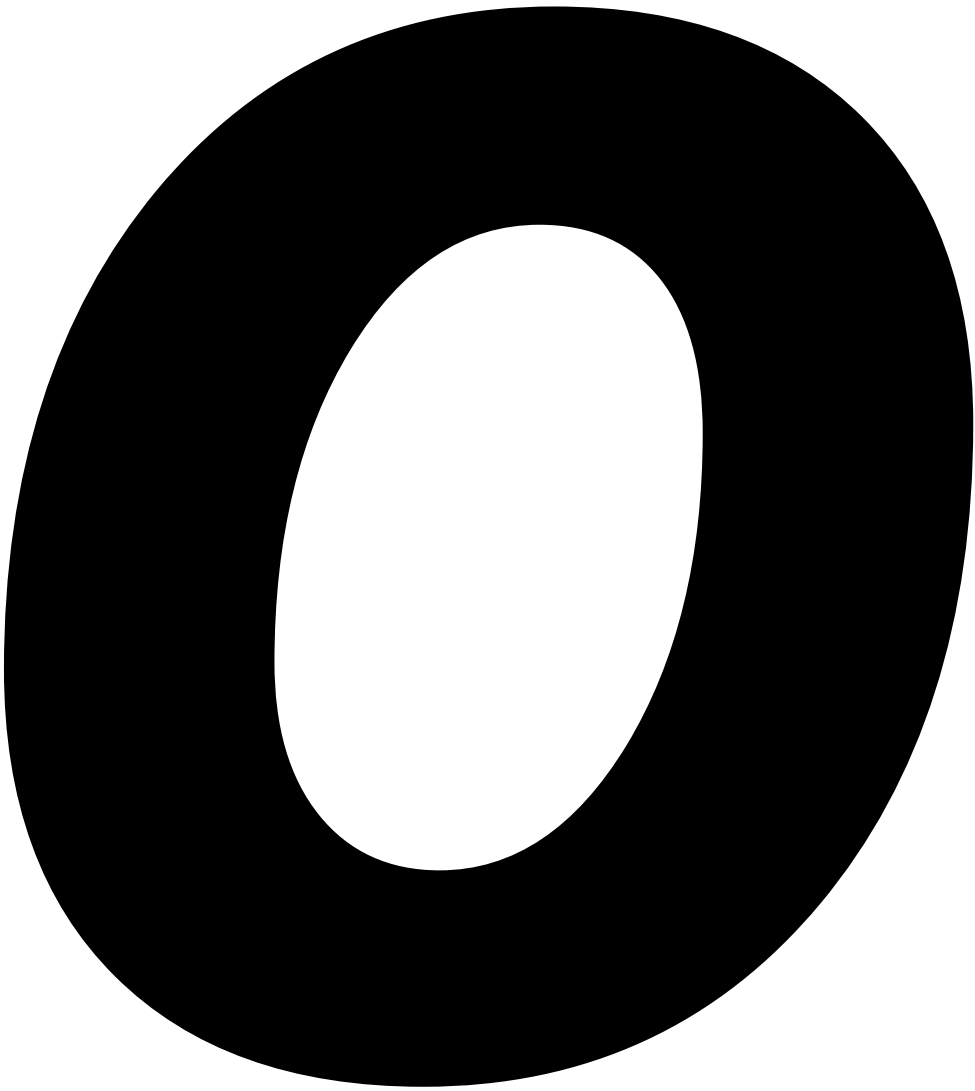
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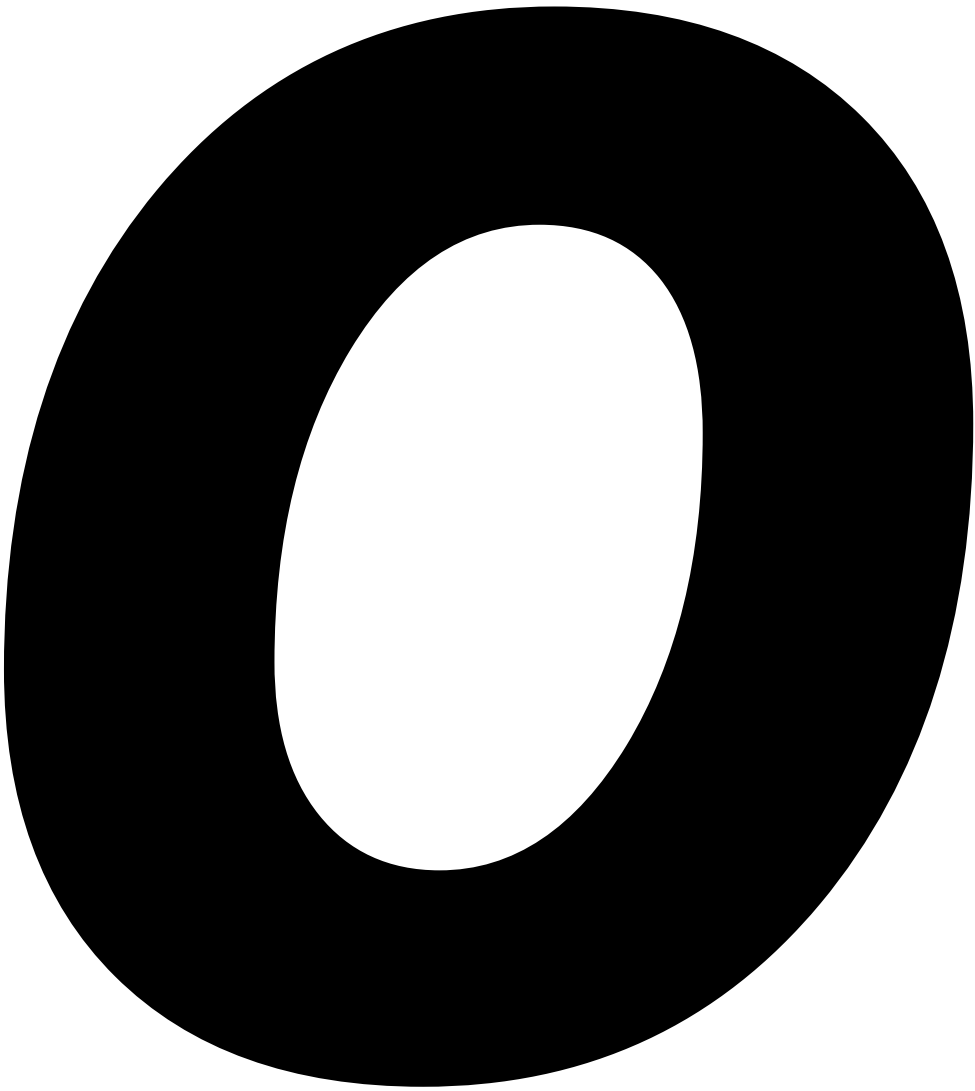
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