Big or Tiny? Reading Standard Form

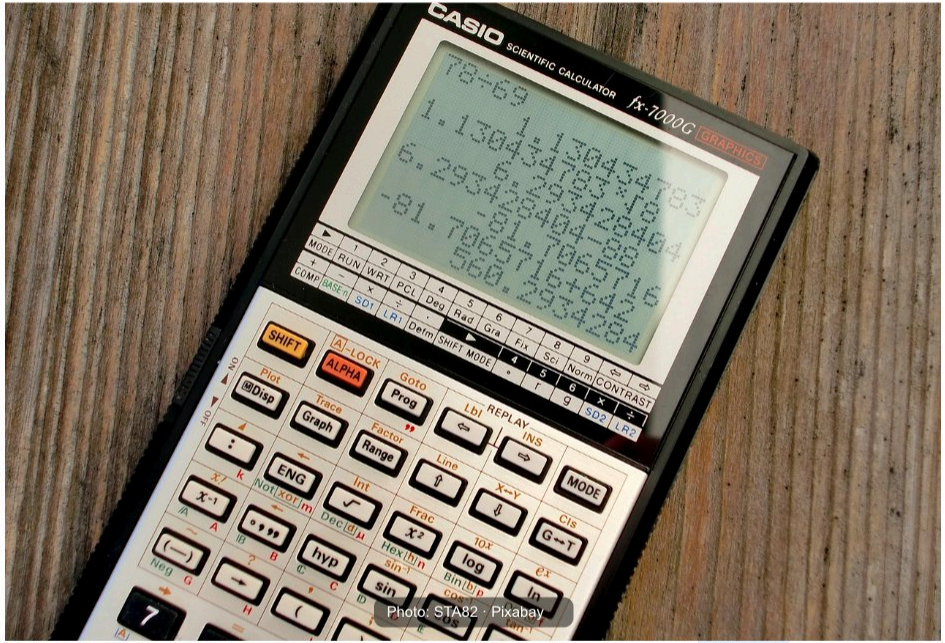
Year 9 Maths: interpret and compare A x 10n

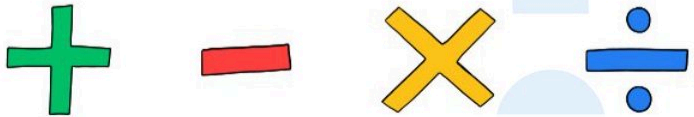


Created with LessonDino.com · AI lesson planner with checkable sources

What could this be?

Calculator shows 3.05 E5. What number is it hiding?

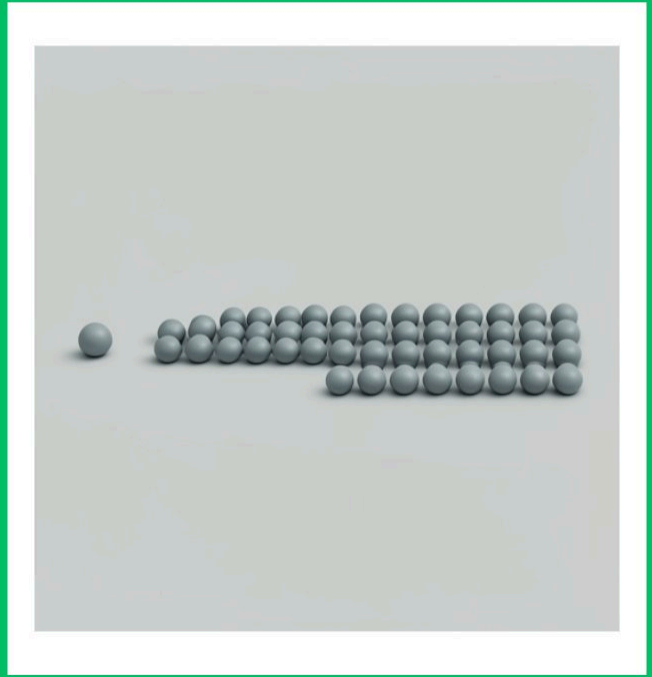


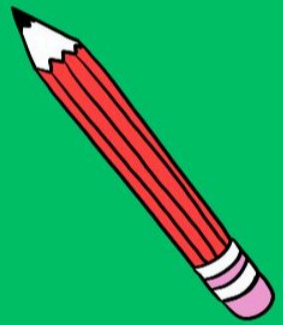


$a^2+b^2=c^2$

BIG IDEA

The power shows the size, the front number shows the detail.





Created with LessonDino.com · AI lesson planner with checkable sources

HOW FAST IS LIGHT?

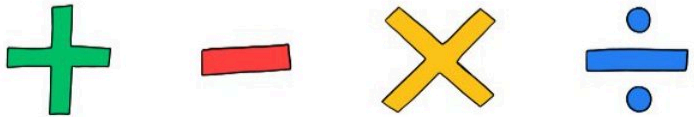
3×10^8

metres per second in standard form

Huge measures are shorter and clearer this way.



Photo: Giles Laurent · CC BY-SA 4.0 · Wikimedia Commons



Created with LessonDino.com · AI lesson planner with checkable sources

$a^2+b^2=c^2$

Think, pair, share

Which is bigger: $4.2x10^6$ or $9.8x10^5$ – and how do you know fast?





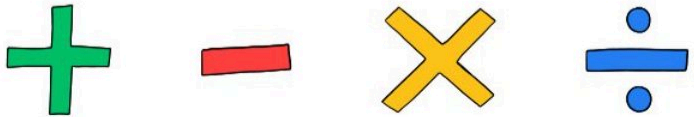
Created with LessonDino.com · AI lesson planner with checkable sources

What counts as standard form?



▶ 0:00 – 3:05

- Spot the rule: $1 \leq A < 10$
- Listen for big vs tiny powers



$a^2+b^2=c^2$

Reading A x 10n

🔎

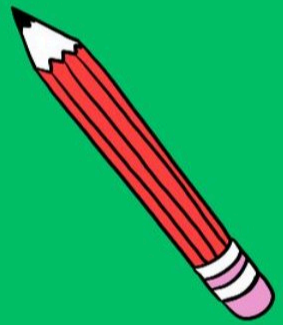
A

Front number stays between 1 and under 10.

✖

x10n

Means multiply A by a power of 10.



📈

n positive

Digits move left - number gets big.

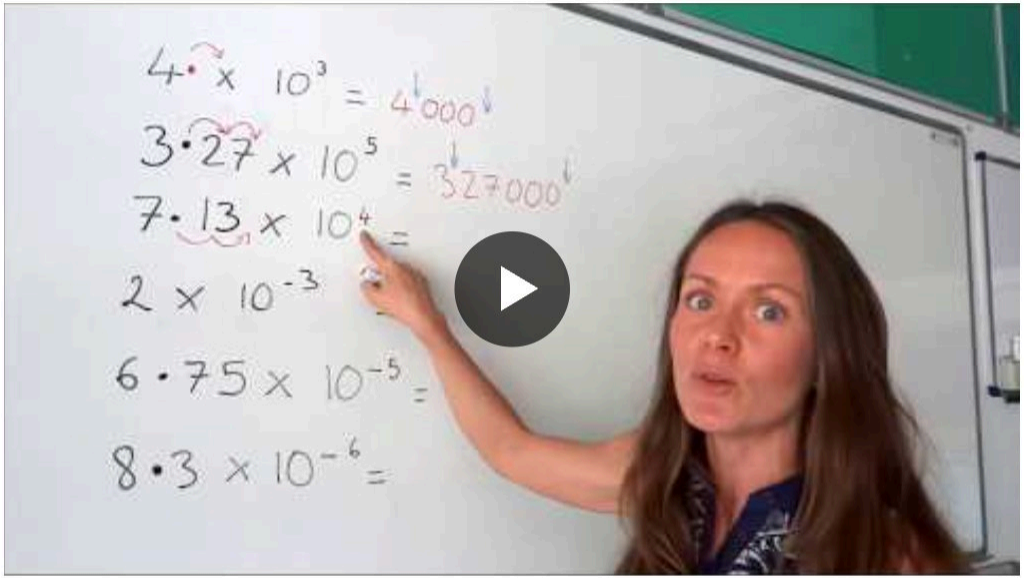
📉

n negative

Digits move right - number gets tiny.

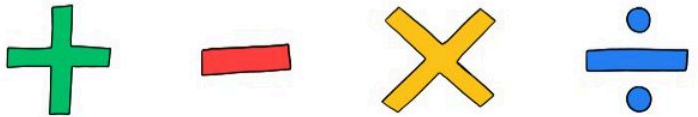
Created with LessonDino.com · AI lesson planner with checkable sources

Back to ordinary numbers



▶ 0:00 – 4:28

- Watch how digits shift with the power
- Notice 10^0 leaves A unchanged



Created with LessonDino.com · AI lesson planner with checkable sources

$a^2+b^2=c^2$

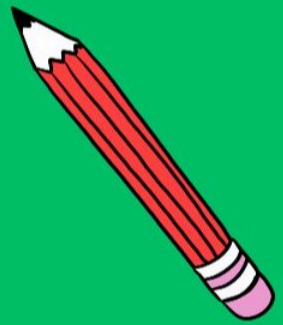
Your task

Order six standard-form numbers from smallest to largest.

1. Copy: 7×10^{-2}, 9×10^{0}, 5×10^{2}, 1.5×10^{3}, 3.2×10^{3}, 4.1×10^{5}
2. Order by power first, then by A
3. Write smallest < … < largest and justify

10 min

In pairs



Created with LessonDino.com · AI lesson planner with checkable sources

Comparing like a pro

👀

Check power first

Bigger n means bigger number for positives.

⚖️

Same power?

Then larger A wins, e.g. 6.1 > 2.3.

🔬

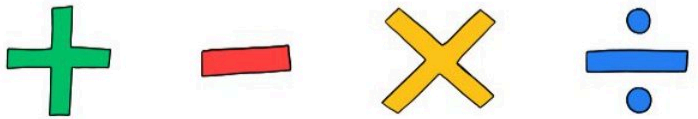
Negative powers

-2 is larger than -5, closer to 1.

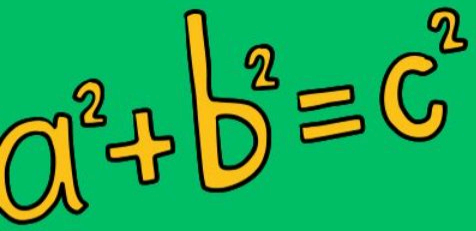
⚠️

Not quite?

25×10^3 is not standard form; fix A first.

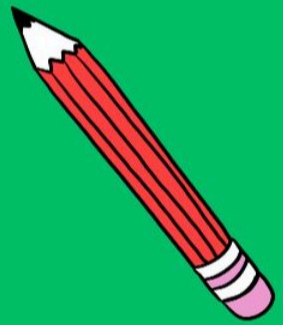


Created with LessonDino.com · AI lesson planner with checkable sources



Most helpful shorthand?

Which is most helpful to see in standard form?



A 3×10^{8} m/s speed of light

B 8×10^{-5} m width of a hair

C 4.3×10^{4} people in a crowd

Vote with your hands, then explain why.

Created with LessonDino.com · AI lesson planner with checkable sources

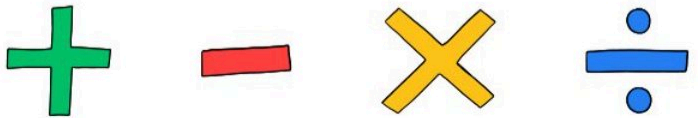
True or false?

3.2×10^4 means 3.2 x10x10x10x10.

2.5×10^{-2} is greater than 2.5×10^2.

25×10^3 is written in standard form.

6×10^0 is just 6 as an ordinary number.



Created with LessonDino.com · AI lesson planner with checkable sources