

SCIENTIFIC NOTATION

To be written in scientific notation a number must be between 1 and 10 followed by a power of 10.



Sample Praxis Questions

1) Which of the following numbers is written in scientific notation?

(A) 375.28×10^2 (B) 3750.289×10^3 (C) 37.5028×10^4

(D) 3.75028×10^5 (E) 0.375028×10^6

2) Which of the following numbers is not written in scientific notation?

(A) 2.75×10^2 (B) 5.68×10^3 (C) 21.54×10^4

(D) 2.6×10^5 (E) 1.37028×10^{-6}

PERCENT TIME SAVERS

If an item is for sale at **15% off**, this means you are only paying 100% - _____% or _____% of the price. It is quicker to take _____ than it is to take 15% & then subtract from the original price.



Ex) A \$200 jacket is on sale at 15% off. What is the sale price of the jacket?

Long way: $\$200 (.15) = \30

$$\begin{array}{r} \$200 \\ - 30 \\ \hline \$170 \end{array}$$

Short way: $\$200 (\quad) = \$$

This works with adding on costs as well. If an item has a **5% sales tax** added on then you are paying 100% + _____% or _____% of the price.

Ex) A \$150 camera has a 5% sales tax. What is the cost of the camera?

Long way: $\$150 (.05) = \7.50

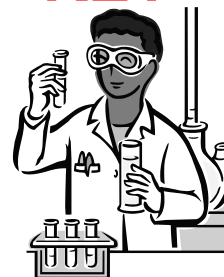
$$\begin{array}{r} \$150.00 \\ + 7.50 \\ \hline \$157.50 \end{array}$$

Short way: $\$150 (\quad) = \$$

SCIENTIFIC NOTATION

To be written in scientific notation a number must be between 1 and 10 followed by a power of 10.

KEY



Sample Praxis Questions:

1) Which of the following numbers is written in scientific notation?

D) 3.75028×10^5

This is the only one that begins with a number between 1 and 10.

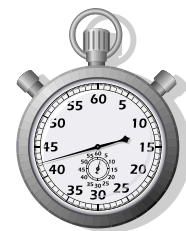
2) Which of the following numbers is not written in scientific notation?

C) 21.54×10^4

This is the only one that does NOT begin with a number between 1 and 10.

PERCENT TIME SAVERS

If an item is for sale at 15% off, this means you are only paying 100% - **15%** or **85%** of the price. It is quicker to take **85%** than it is to take 15% & then subtract from the original price.



Ex) A \$200 jacket is on sale at 15% off. What is the sale price of the jacket?

Long way:

$$\$200 (.15) = \$30$$

$$\begin{array}{r} \$200 \\ - \quad 30 \\ \hline \$170 \end{array}$$

Short way:

$$\$200 (.85) = \$170$$

This works with adding on costs as well. If an item has a 5% sales tax added on then you are paying 100% + **5%** or **105%** of the price.

Ex) A \$150 camera has a 5% sales tax. What is the cost of the camera?

Long way:

$$\$150 (.05) = \$7.50$$

$$\begin{array}{r} \$150.00 \\ + \quad 7.50 \\ \hline \$157.50 \end{array}$$

Short way:

$$\$150 (1.05) = \$157.50$$

FRACTIONS

This will save you a **LOT OF TIME** on the Praxis:

THE "1-2-3" METHOD OF ADDING & SUBTRACTING FRACTIONS:



To add the fraction $\frac{a}{b}$ to the fraction $\frac{x}{y}$ do this:

$$\frac{a}{b} + \frac{x}{y} = \frac{a \cdot y + b \cdot x}{b \cdot y}$$

The diagram shows the cross-multiplication process. A blue arrow labeled '1' points from 'a' to 'y'. A red arrow labeled '2' points from 'x' to 'b'. A green arrow labeled '3' points from the bottom of 'b' to the bottom of 'y'.

Ex) $\frac{3}{4} + \frac{2}{9} = \frac{3 \cdot 9 + 2 \cdot 4}{4 \cdot 9} = \frac{27 + 8}{36} = \frac{35}{36}$

The resulting fraction will often need to be reduced but hey - it's easier than actually finding the lowest common denominator!

ADDING FRACTIONS:

Ex) $\frac{2}{7} + \frac{3}{5} = \frac{10 + 21}{35} = \frac{31}{35}$

The diagram shows the cross-multiplication process for 2/7 + 3/5. Dotted lines show arrows from 2 to 5 and 3 to 7. A dashed arrow at the bottom points from the bottom of 7 to the bottom of 5.

Try these:

1) $\frac{4}{5} + \frac{2}{7} = \underline{\hspace{2cm}} =$

2) $\frac{1}{9} + \frac{7}{6} =$

3) $\frac{2}{3} + \frac{5}{11} =$

4) $\frac{11}{4} + \frac{3}{5} =$

FRACTIONS

KEY



THE "1-2-3" METHOD OF ADDING & SUBTRACTING FRACTIONS:

To add the fraction $\frac{a}{b}$ to the fraction $\frac{x}{y}$ do this:

$$\frac{a}{b} + \frac{x}{y} = \frac{a \cdot y + b \cdot x}{b \cdot y}$$

The diagram shows the cross-multiplication process. Arrow 1 points from 'a' to 'y', arrow 2 points from 'x' to 'b', and arrow 3 is a curved arrow pointing from the bottom of 'b' to the bottom of 'y'.

$$\text{Ex) } \frac{3}{4} + \frac{2}{9} = \frac{3 \cdot 9 + 2 \cdot 4}{4 \cdot 9} = \frac{27 + 8}{36} = \frac{35}{36}$$

The resulting fraction will often need to be reduced but hey - it's easier than actually finding the lowest common denominator!

ADDING FRACTIONS:

$$\text{Ex) } \frac{2}{7} + \frac{3}{5} = \frac{10 + 21}{35} = \frac{31}{35}$$

The diagram shows the cross-multiplication process with dashed arrows. Arrow 1 points from '2' to '5', arrow 2 points from '3' to '7', and arrow 3 is a dashed curved arrow pointing from the bottom of '7' to the bottom of '5'.

$$1) \frac{4}{5} + \frac{2}{7} = \frac{28 + 10}{35} = \frac{38}{35} \qquad 2) \frac{1}{9} + \frac{7}{6} = \frac{6 + 63}{54} = \frac{69}{54} = \frac{23}{18}$$

$$3) \frac{2}{3} + \frac{5}{11} = \frac{22 + 15}{33} = \frac{37}{33} \qquad 4) \frac{11}{4} + \frac{3}{5} = \frac{55 + 12}{20} = \frac{67}{20}$$