

Lesson 3:Nov 3, 2022Multiplying or Dividing Decimals
by 10, 100, 1000, ...

Evaluate:

$$1.3035 \times 10 = \underline{\hspace{2cm}}$$

$$1.\underline{3}035 \times 100 = \underline{130.35}$$

$$1.3035 \times 1000 = \underline{\hspace{2cm}}$$

$$1.3035 \times 10000 = \underline{\hspace{2cm}}$$

- ① Does the decimal move to the left or right?
- ② The # of place values the decimal moves corresponds to what in the 10/100/1000...?
↳ to the # of zeros in 10/100/1000, ...

Evaluate

$$0.5 \times 100$$

$$0.5000 \times 100 = 050.00$$

not needed
↓ ↓

$$0.05 \times 100 = 5.0$$
$$= 5$$

$$0.005 \times 100 = 0.5$$

$$= 50 \$$$
$$= 50.00 \$$$

007

→ James Bond

Scientific Notation

(short)
 → a concise way of writing
 big #'s.

Radius of the Earth:

6 370 000 m

6.37 × 1000000 m

6.37 × 10⁶ (short)

$$10^2 = 100$$

$$10^3 = 1000$$

Mass of Moon:

73 600 000 000 000 000 000 000

7.36 × 10²²

Recall: $\frac{\circ}{\circ}$ is the opposite of x

$$21\ 713.\ 5 \quad \frac{\circ}{\circ} \quad 10 = \underline{2\ 171.\ 35}$$

$$21\ 713.\ 5 \quad \frac{\circ}{\circ} \quad 100 = 217.\ 135$$

· the decimals moves to the left.

· the # of place values the decimal moves corresponds to the # of zeros!

Evaluate:

$$0.\ 05 \quad \frac{\circ}{\circ} \quad 100 = 0.\ 05$$

$$0.\ 50 \quad \frac{\circ}{\circ} \quad 100 = 0.\ 5$$

Scientific Notation for v. small #'s

length of a bacteria:

$$0.000\ 001\ 5\ \text{m}$$

$$1.5 \div \frac{1\ 000\ 000}{1}$$

$$1.5 \times \frac{1}{1\ 000\ 000}$$

$$1.5 \times \frac{1}{10^6}$$

$$1.5 \times 10^{-6}\ \text{m}$$

$$a^n = \frac{1}{a^{-n}}$$

Question: There's a sweater that costs \$40, but you receive a discount of one quarter of that price. You decide to buy 3 of them at that discount price. How much will you pay in total?

• Labeling / creating Equations

• The Want List

(sometimes tedious & concise)

long can be good when stuck.

↳ when hard use concrete examples.

WANT: total cost

TOOL eq. $T.C. = \text{cost per item} \times \# \text{ of items}$

INFO: $\text{cost per item} = ?$ # of items = 3
 ⇒ list all info needed for tool (except want) (discount cost)
 • any unknowns (?) in info section becomes new want.

WANT: discount cost per item

TOOL: $DC = \text{Regular cost} - \text{Discount received}$

INFO: R.C. = 40\$ DR = ?

Price (\$)	Discount Received (\$)
100\$	20\$
3.5\$	0.50\$

WANT: Discount Received

TOOL: $DR = \text{fraction} \times \text{Regular cost}$

INFO: fraction = $\frac{1}{4}$ R.C. = 40\$

if you have all info, start doing math from here! ↗

Total Cost = $(\text{Regular cost} - \text{Fraction} \times \text{Regular cost}) \times \# \text{ of items}$

T.C. = $(40 - \frac{1}{4} \times 40) \times 3$
 (discount received)
 discount cost