

Welcome back Algebra

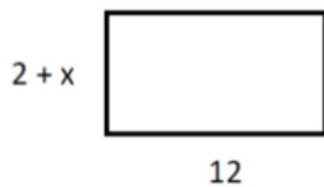
Today you need:

- Notebook
- Writing Utensil
- Calculator
- Homework

Friday 9/7

Find the area, express as a ~~monomial~~^{binomial}. $A = bh$

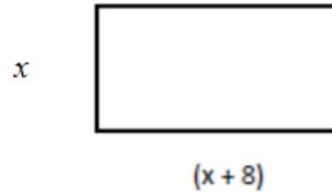
1.



$$12(2+x)$$

$$24 + 12x$$

2.

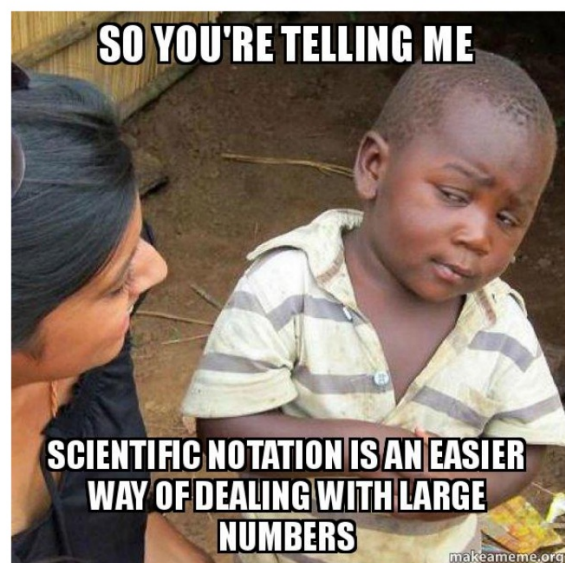


$$x(x+8)$$

$$x^2 + 8x$$

Today I can express numbers in scientific notation using real world examples.

I can speak about scientific notation using: scientific notation, standard notation, exponent, base, power of 10.



Recall:

Express the following in scientific notation:

$$\begin{array}{l} 4,062,000 \\ \text{u u u u} \\ 4.062 \times 10^6 \end{array}$$

$$\begin{array}{l} 0.0000823 \\ \text{u u u} \\ 8.23 \times 10^{-5} \end{array}$$

Express the following in standard form:

$$6.49 \times 10^5$$

$$\begin{array}{l} 649,000 \\ \text{u u u u} \\ \boxed{649,000} \end{array}$$

$$1.8 \times 10^{-3}$$

$$\begin{array}{l} 0.0018 \\ \text{u u u} \\ \boxed{0.0018} \end{array}$$

Neptune's mean distance from the Sun is 4,500,000,000 kilometers. Uranus' mean distance from the Sun is 2,870,000,000 kilometers. Express these distances in scientific notation.

Neptune 4.5×10^9 kilometers from sun

Uranus' 2.87×10^9 kilometers from sun

Multiply in Scientific Notation

1. $(6.5 \times 10^{12})(8.7 \times 10^{-15})$

$$(6.5 \cdot 8.7)(10^{12} \cdot 10^{-15})$$

$$56.55 \times 10^{-3}$$

$$5.655 \times 10^{-2}$$

2. $(7.8 \times 10^{-4})^2$

$$(7.8 \times 10^{-4})(7.8 \times 10^{-4})$$

$$(7.8 \cdot 7.8)(10^{-4} \cdot 10^{-4})$$

$$60.84 \times 10^{-8}$$

$$6.084 \times 10^{-7}$$

One kilogram of coal has an energy density of 2.4×10^7 joules.
The United States has a coal reserve of 2.46×10^{14} kilograms.
What is the total energy density of the United States' coal reserve? Express your answer using scientific notation.

$$(2.46 \times 10^{14})(2.4 \times 10^7)$$

$$(2.46 \cdot 2.4)(10^{14} \cdot 10^7)$$

$$5.904 \times 10^{21}$$

Dividing in Scientific Notation

$$\begin{array}{r} 1. \quad 4.5 \times 10^8 \\ \hline 1.5 \times 10^{10} \end{array}$$

$$3 \times 10^{8-10}$$

$$\boxed{3 \times 10^{-2}}$$

$$\begin{array}{r} 2. \quad 1.305 \times 10^3 \\ \hline 1.45 \times 10^{-4} \end{array}$$

$$0.9 \times 10^{3-(-4)}$$

$$\begin{array}{r} 0.9 \times 10^7 \\ \hline \boxed{9 \times 10^6} \end{array}$$

A 30-second commercial aired during the 2007 Super Bowl cost \$2,600,000. A 30-second commercial aired during the 1967 Super Bowl costs \$40,000. How many times more expensive was it to air an advertisement during the 2007 Super Bowl than the 1967 Super Bowl?

$$\begin{array}{l} 2007 \text{ SB} \\ 1967 \text{ SB} \end{array} \frac{2.6 \times 10^6}{4 \times 10^4} = 0.65 \times 10^2$$

65 times more