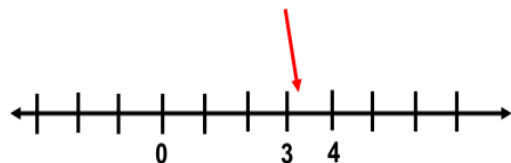


$$\sqrt{10}$$



between $\sqrt{9}$ and $\sqrt{16}$

Grouping Symbols

()
{ }
[]
|abs|
Fraction bar

Exponents

Multiplication

Division

Left
to
right

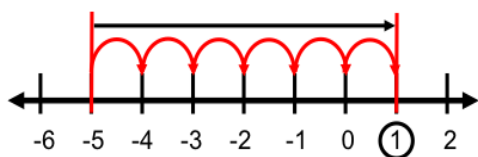
Addition

Subtraction

Left
to
right

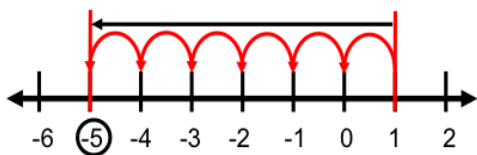
Addition

$$-5 + 6 = 1$$



Subtraction

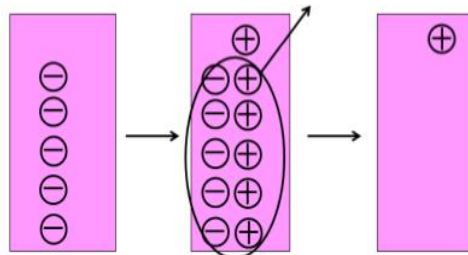
$$1 - 6 = -5$$



Addition

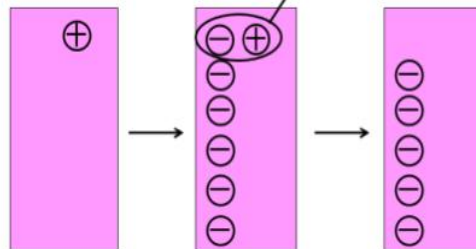
$$-5 + 6 = 1$$

$\oplus = 1$ $\ominus = -1$



Subtraction

$$1 - 6 = -5$$



**Order of
Operations**

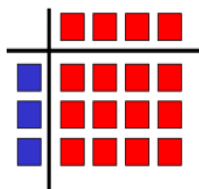
**Square
Root**

**Integer
Operations**

**Integer
Operations**

Multiplication

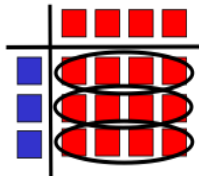
$$3 \cdot (-4) = -12$$



How many tiles are in 3 groups of -4 tiles?

Division

$$-12 \div -4 = 3$$



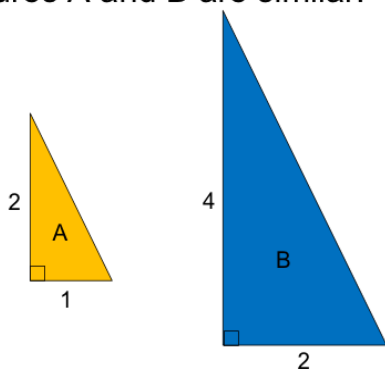
How many groups of -4 tiles are in -12 tiles?

$$\frac{a}{b} = \frac{c}{d}$$

$$a:b = c:d$$

a is to b as c is to d

Figures A and B are similar.



What is the scale factor from A to B?

Scale factor = 2

What is the scale factor from B to A?

Scale factor = $\frac{1}{2}$

$$\text{\$4 per gallon} = \frac{\text{\$4}}{1 \text{ gallon}}$$

$$70 \text{ miles per hour} = \frac{70 \text{ miles}}{1 \text{ hour}}$$

Proportion

**Integer
Operations**

Unit Rate

Scale Factor

$$\text{Percent of change} = \frac{\text{new} - \text{original}}{\text{original}}$$



Was \$3.25
per gallon

Now \$3.85
per gallon

What is the percent of
increase?

$$\frac{3.85 - 3.25}{3.25}$$

$$\frac{0.60}{3.25} = 0.18$$

increase of 18%

$$\text{Percent of change} = \frac{\text{new} - \text{original}}{\text{original}}$$



Was \$1200
Now only \$900

What is the percent of
decrease?

$$\frac{900 - 1200}{1200}$$

$$\frac{-300}{1200} = -0.25$$

decrease of 25%

radical symbol

$$\sqrt{36} = 6$$

$$\sqrt{36} = \sqrt{6 \cdot 6} = \sqrt{6^2} = 6$$

Squaring a number and taking a square
root are inverse operations.

$$-\sqrt{36} = -6$$

$$(-6)^2 = -6 \cdot -6 = 36$$

**Percent of
Decrease**

**Percent of
Increase**

Square Root