

RATIOS – COMPARISON OF TWO QUANTITIES

Ways to write ratio : **X to Y** **X : Y** $\frac{X}{Y}$



Part : Part

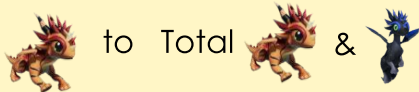


FOR EVERY 2 LIONS
THERE ARE 3 BLUES.

2 to 3 , 2 : 3 , $\frac{2}{3}$



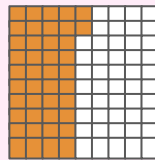
Part : Whole



FOR EVERY 2 LIONS THERE
ARE 5 TOTAL CHARACTERS.

2 to 5 , 2 : 5 , $\frac{2}{5}$

PERCENT – NUMBER DIVIDED BY 100



42% = 42 out of 100

$$\frac{42}{100} = 0.42$$

What is **20%** of 50?

Step 1: Change 20% to fraction $\frac{20}{100}$

Step 2: Change 50 to fraction $\frac{50}{1}$

Step 3: Multiply! $\frac{1}{5} \times \frac{20}{100} \times \frac{50}{1} = \frac{50}{5} = 10$

20% of 50 is 10.

EXPONENTS – REPEATED MULTIPLICATION

Exponential Form

Expanded (Factor) Form

Standard Form

Word Form

Base \rightarrow 4^3 \leftarrow Exponent

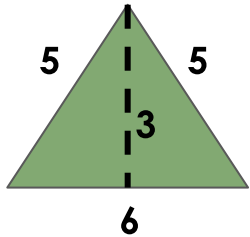
$4 \cdot 4 \cdot 4$

64

Four to the third power

AREA OF TRIANGLES

Formula : $A = \frac{1}{2} bh$



$$b = 6$$

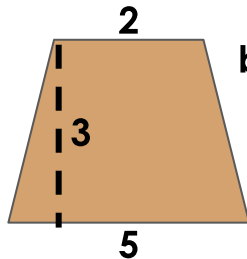
$$h = 3$$

$$A = \frac{1}{2} \times 6 \times 6$$

$$A = 9 \text{ units}^2$$

AREA OF TRAPEZOID

Formula : $A = \frac{1}{2} (b_1 + b_2) h$



$$b_1 = 5, b_2 = 2, h = 3$$

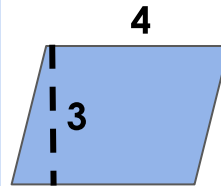
$$A = \frac{1}{2} (5+2) \times 3$$

$$A = 7 \times 3 = 21$$

$$A = 21 \text{ units}^2$$

AREA OF PARALLELOGRAM

Formula : $A = b \times h$



$$b = 4$$

$$h = 3$$

$$A = 4 \times 3$$

$$A = 12 \text{ units}^2$$

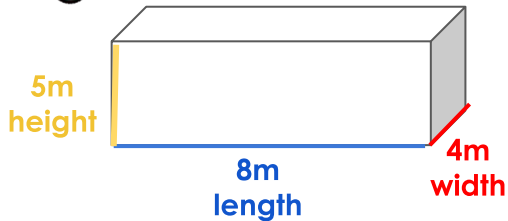
VOLUME OF RECTANGULAR PRISM

Formula : $V = l \times w \times h$

$$l = 8\text{m}, w = 4\text{m}, h = 5\text{m}$$

$$V = 8 \times 4 \times 5$$

$$V = 160\text{m}^3$$



VOLUME OF TRIANGULAR PRISM

Formula : $V = B \times H$

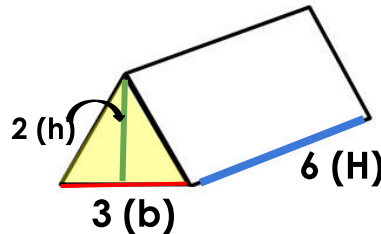
$$B(\text{base}) = \frac{1}{2} bh$$

$$B = \frac{1}{2} \times 6 \times 3$$

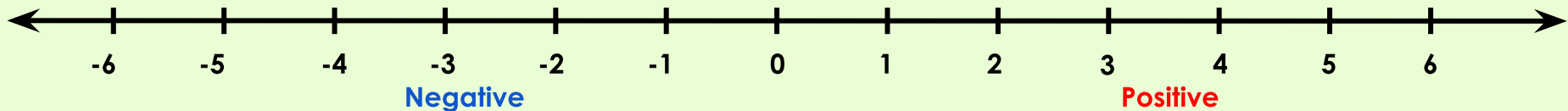
$$B = 9$$

$$V = 9 \times 6 = 54$$

$$V = 54 \text{ units}^3$$



Integers are positive or negative whole numbers including zero



ADDING INTEGERS

Same signs - **Add & Keep** the sign.

$$-5 + -3 = -8$$

Different signs - **Subtract & Keep** the sign of **bigger #**

$$-5 + 3 = -2$$

$$5 + -3 = 2$$

SUBTRACTING INTEGERS

1. **Keep** the first #,
2. **Flip** the sign to +
3. **Change** the sign of the second #

$$-5 - 2 = ?$$

$$-5 + -2 = -7$$



MULTIPLYING AND DIVIDING INTEGERS

Same signs = Positive

$$-5 \times -5 = 25$$

$$-6 \div -3 = 2$$

Different signs = Negative

$$-5 \times 5 = -25$$

$$-6 \div 3 = -2$$

ONE-STEP EQUATION

$$8 + X = 17$$

What can I add to 8 to get to 17?

INVERSE OPERATIONS

$$\begin{array}{r} 8 + X = 17 \\ -8 \quad -8 \end{array}$$

$$17 - 8 = 9 \text{ so } X = 9$$

$$35 - X = 24$$

What can I subtract from 35 to get to 24?

INVERSE OPERATIONS

$$\begin{array}{r} 35 - X = 24 \\ -35 \quad -35 \end{array}$$

$$-X = -11 \text{ so } X = 11$$

Don't forget to flip the sign!

$$48x = 144$$

What multiplied by 48 equals 144?

INVERSE OPERATIONS

$$\begin{array}{r} 48x = 144 \\ \underline{48} \quad \underline{48} \end{array}$$

$$X = 3$$

$$\frac{X}{8} = 4$$

What divided 8 equals 4?

INVERSE OPERATIONS

$$\begin{array}{r} \frac{X}{8} = 4 \\ \times 8 \quad \times 8 \end{array}$$

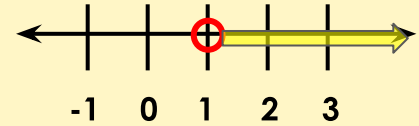
$$X = 32$$



ONE-STEP EQUATION

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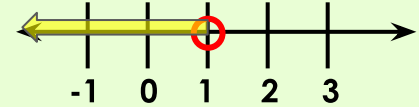
Greater than



$$X > 1$$

$<$

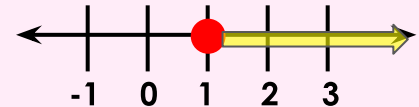
Less than



$$X < 1$$

\geq

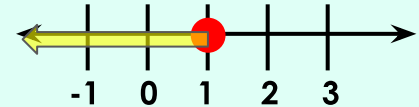
Greater than or equal to



$$X \geq 1$$

\leq

Less than or equal to



$$X \leq 1$$