

PROPORTIONS

A **PROPORTION** SHOWS A SITUATION WHERE **TWO RATIOS OR RATES ARE EQUIVALENT.**

$$\frac{2}{3} = \frac{4}{6}$$

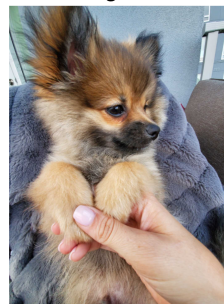
$$2:3 = 4:6$$

CAN BE WRITTEN AS A FRACTION

Original



Enlargement 1



WE CAN USE A **UNIT RATE** TO SOLVE A PROPORTION PROBLEM:

→ IT COSTS \$11.94 TO PAY JAMIE FOR 2 HOURS OF WORK. HOW MUCH DOES HE MAKE FOR 5 HOURS OF WORK?

$$\begin{array}{r} 5.97 \\ 2 \overline{) 11.94} \\ \underline{-10} \\ 19 \\ \underline{-18} \\ 14 \\ \underline{-14} \\ \hline 0 \end{array}$$

\$5.97/Hour → UNIT RATE

$$\begin{array}{r} 5.97 \\ \times 5 \\ \hline 29.85 \end{array}$$

HE WOULD MAKE \$29.85 AFTER 5 HRS.

THE \$ HE MAKES IS **PROPORTIONAL** TO THE HOURS WORKED.

$$\frac{15}{5} = \frac{x}{4}$$

$$\frac{3}{1} = \frac{x}{4} \xrightarrow{\times 4} \frac{3}{1} = \frac{12}{1}$$

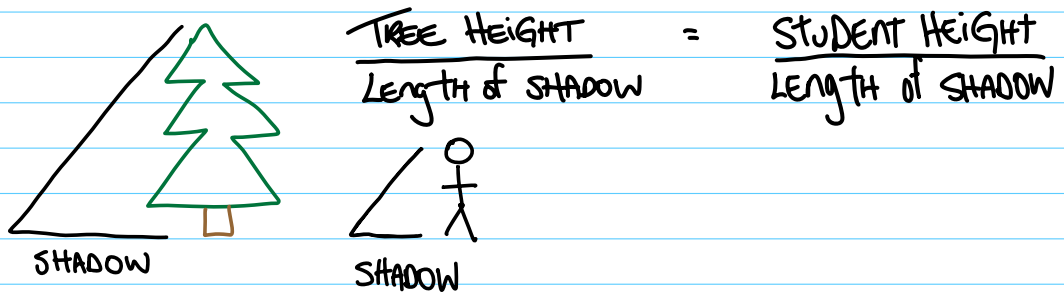
3:1 = 12:4

 → PROPORTIONAL

$$\frac{4}{10} = \frac{32}{T}$$

$$10 \times 8 = 80$$

$$\frac{4}{10} = \frac{32}{80}$$



IF A 15M TREE MAKES A 9M SHADOW, WHAT IS THE HEIGHT OF A STUDENT WITH A 1.08M SHADOW?

$$\frac{\text{TREE HEIGHT}}{\text{Length of SHADOW}} = \frac{\text{STUDENT HEIGHT}}{\text{Length of SHADOW}}$$

$$\frac{15\text{m}}{9\text{m}} = \frac{x}{1.08\text{m}}$$

$$\frac{1.6\text{m}}{1\text{m}} = \frac{x}{1.08\text{m}}$$

$$1.66 \times 1.08 = 1.7928\text{m}$$

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→ STUDENT HEIGHT.

PROPORTION PROBLEM SOLVING:

- #1. SET UP PROPORTION IN WORDS
- #2. Fill in GIVEN information
- #3. SOLVE for MISSING VALUE

$$\frac{2}{3} = \frac{6}{9}$$

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$$\begin{array}{r} 5.97 \\ 2 \overline{) 11.94} \\ \underline{-10} \downarrow \\ 19 \downarrow \\ \underline{-18} \downarrow \\ 14 \downarrow \\ \underline{-14} \\ 0 \end{array}$$

\$5.97/Hour → UNIT RATE

$$\begin{array}{r} 5.97 \\ \times 5 \\ \hline 29.85 \end{array}$$

JAMIE MAKES \$29.85 in 5 Hours.

THE \$ HE MAKES IS PROPORTIONAL TO HOW MUCH HE WORKS