

Agenda: June 6

- Any questions Algebra or Percentages Review?
- Proportions Review
- Practice in Exam booklet by topic

Proportions Review

Proportional Situations can be expressed in many different ways

① Equivalent fraction

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

$$a \div b = c \div d$$

$$a \cdot d = b \cdot c$$

equivalent rates
equivalent ratios

② Rule

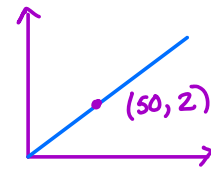
$$y = ax$$

a = coefficient
of proportionality

$$a = \frac{y}{x}$$

③ Graph

- straight line
- passes through the origin $(0, 0)$



to solve for a missing value in a proportional graph you need a perfect point on the line

Ratios: $\frac{a}{b}$ or $a:b$ (a to b) or decimal ($a \div b$)

- comparison between two numbers in the same type of unit

- unit conversions may be necessary to get units to match

m, L or g
(SI units)

K H D M D C M
 $\times 10$ $\times 10$
 $\div 10$ $\div 10$

time sec. 60 sec in min, 60 min in an hr, 3600 sec in an hr
 24 hrs in a day

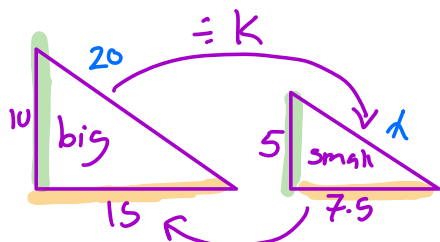
Rates: $\frac{a}{b}$ or decimal ($a \div b$)

- comparison between two numbers in different types of units

Km/hr, \$/hr, \$/amount

- In order to solve for missing information we can find the UNIT RATE ($a \div b$ so we get num per 1 den)

Similar figures: — corresponding angles are congruent
 — corresponding sides are proportional



To solve for missing sides, we make a proportion using corresponding sides (matching sides)

$$\begin{array}{l} \text{big } \Delta \rightarrow \frac{10}{5} = \frac{15}{7.5} \leftarrow \text{big } \Delta \\ \text{small } \Delta \rightarrow \end{array}$$

$$K = \frac{10}{5} = 2 \quad \text{scale factor}$$

you can use the scale factor on sides or on perimeter

To solve for x
 either $20 \div 2 = 10$

$$\text{or } \frac{15}{7.5} = \frac{20}{x} \quad x = \frac{7.5 \times 20}{1} = 10$$

Solving for missing values:

Summer camps call for a 30:4 ratio between campers and counsellors. If the camp has hired 15 camp counsellors what is the maximum number of campers that can come?

$$\begin{array}{l} \text{campers} \rightarrow \frac{30}{4} = \frac{x}{15} \leftarrow \text{new campers} \\ \text{counsellors} \rightarrow \end{array}$$

$$x = \frac{30 \times 15}{4} = 112.5$$

maximum of 112 campers (since 113 would be over ratio)