

# 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

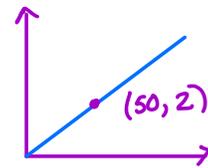
$$y = ax$$

$a$  = 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  
 $\xrightarrow{\times 10}$   $\xrightarrow{\times 10}$   
 $\xleftarrow{\div 10}$   $\xleftarrow{\div 10}$

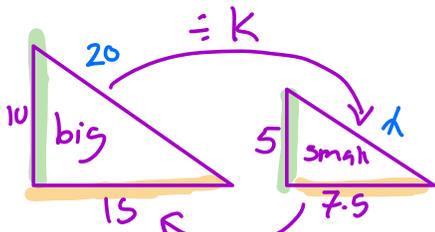
time sec. 60sec in min, 60min in an hr, 3600sec in an hr  
24 hrs in a day

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)