

# D: Proportional Reasoning

## Proportion

- setting two ratios equal to each other.
- to solve you cross multiply.

## Examples

1. Sam was paid \$40 for 6h of work how much should she get for 3h?

Solve using a unit rate : proportion!

Unit Rate

$$= \frac{\$40}{6h}$$

$$= \$6.67/h$$

$$= (\$6.67/h)(3h)$$

$$= \$20$$

Proportion

$$\frac{40}{6h} \times \frac{x}{3h}$$

$$\frac{120}{6} = \frac{6x}{6}$$

$$20 = x$$

2. Determine the missing value.

a)  $\frac{4}{6} \times \frac{x}{30}$

$$\frac{6x}{6} = \frac{120}{6}$$

$$x = 20$$

b)  $\frac{60}{90} \times \frac{12}{x}$

$$\frac{60x}{60} = \frac{1080}{60}$$

$$x = 18$$

c)  $\frac{120\text{km}}{6h} = \frac{x}{12h}$

$$\frac{120}{6} \times \frac{x}{12}$$

$$\frac{6x}{6} = \frac{240}{6}$$

$$x = 40 \text{ km}$$

$$d) \frac{356 \text{ beats}}{4 \text{ min}} = \frac{x}{1 \text{ min}}$$

$$\frac{356}{4} = \frac{x}{1}$$

$$\frac{4x}{4} = \frac{356}{4}$$

$$x = 89 \text{ beats}$$

3. Set up a proportion if: 20 seeds have a mass of 34g, 60 beans have a mass of 102g

$$\frac{20 \text{ seeds}}{34 \text{ g}} = \frac{60 \text{ seeds}}{102 \text{ g}}$$

$$2040 = 2040 \checkmark$$

4. A recipe calls for 350 mL of oil and 100 mL of vinegar. If you use 600 mL of oil how much vinegar do you need to the nearest hundredth?

oil  
vinegar

$$\frac{350}{100} \times \frac{600}{x}$$

$$\frac{350x}{350} = \frac{60000}{350}$$

$$x = 171.43 \text{ mL}$$

Pg. 67 # 4-14.