

8.1 Ratios

same units
Compare things

$$a:b \quad \frac{a}{b} \quad a \text{ to } b$$

$$\frac{2}{3} = \frac{40}{60} \quad 44:88 \quad 1:2$$

8.2 Rates

Compare two different units

Unit Rate
per 1 unit

Will reads 300 pages in 6 hours

$$\text{Rate } \frac{300 \text{ pages}}{6 \text{ hrs}} \quad \frac{50 \text{ pages}}{1 \text{ hr}} \text{ unit Rate}$$

Demetrius walked 8 miles in 2 hrs
Aiden walked 3 miles in 1 hr

$$D = \frac{8}{2} = 4 \text{ mph}$$

$$A = \frac{3}{1} = 3 \text{ mph}$$

$$\frac{4800}{3.20} \quad \frac{3600}{2.75}$$

Find the unit rate
How much per ounce

8.3 Solving Proportions

Equivalent Ratios

$$\frac{3}{5} \cdot \frac{19}{19} = \frac{21}{35} \quad \text{Equivalent}$$

Crossproduct

$$\frac{2.4}{96} = \frac{X}{144}$$

$$2.4 \cdot 144 = 96 \cdot X$$

$$\frac{345.6}{96} = \frac{96 \cdot X}{96}$$

$$3.6 = X$$

Scale Drawings

Ratio of measurement
distance

$$1 \text{ cm} : 4 \text{ km}$$

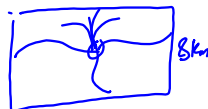
Dimensions
20 km x 8 km



$$P = 14 \text{ cm}$$

$$A = 10 \text{ cm}^2$$

Peri scale
14 cm : 56 km
1 cm : 4 km
Area scale
100 cm² : 1600 km²
1 cm² : 16 km²



$$P = 20 \text{ km}$$

$$A = 160 \text{ km}^2$$

8.5 Percent

$$P \rightarrow F \quad 28\% \rightarrow \frac{28}{100}$$

$$2.5\% \rightarrow \frac{2.5}{100} \rightarrow \frac{25}{1000}$$

$$P \rightarrow D \quad 37\% \text{ decimal 2 places}$$

$$0.37 \text{ divide by 100}$$

$$375\% \rightarrow 3.75$$

8.6 decimal or fraction as percent

D → P 0.67 67%
 decimal 2 places
 × by 100

F → P $\frac{7}{25} = \frac{28}{100}$ 28%
 (7 × 4) / (25 × 4)

P431 common percents
 $\frac{5}{8}$ divide to make a decimal
 0.625 62.5%

8.7 Percent of A number

% of a number

multiply
 sales tax / tips (add to total)
 discounts (subtract from total)

Simple Interest

$I = Prt$
 \$ % Ⓟ

t = in years
 r = %
 P = amount saved