

# Warm-Up

An apple grower's cooperative has 250 members. If 100 of the growers use a certain insecticide, find the portion that do not use the insecticide.



Handwritten work for the warm-up problem:

$$\frac{100}{250}$$

$$\frac{150}{250}$$

$$\frac{3}{5}$$

Fraction	Decimal	Percent
_____	2.5	_____
_____	1.7	_____
$3\frac{1}{4}$	_____	_____
$2\frac{4}{5}$	_____	_____

Formula for percent:

$$\frac{\text{part}}{\text{whole}} = \frac{\%}{100}$$

Example 6):

$$\frac{\text{part}}{\%} = \frac{11}{95} \quad \frac{11}{x} = \frac{5}{100}$$

Example 18):

$$\frac{50}{89.6} = \frac{x}{100}$$

$$\frac{89.6x}{89.6} = \frac{5000}{89.6}$$

Example 24):

$$12\frac{3}{4} \frac{51}{7} = 12.75$$

$$\frac{5600}{100} = 56$$

Handwritten multiplication:

$$12.75 \times 56 = 714.00$$

Handwritten long division:

$$896 \overline{) 50000.0}$$

$$\underline{4480} \phantom{0}$$

$$52000$$

$$\underline{44800}$$

$$7200$$

$$\frac{50000}{896}$$

Result of division:

$$55.8\%$$

## 6.4 Using Proportions to Solve Percent Problems

$$\frac{\text{is/part}}{\text{of/whole}} = \frac{\%}{100}$$

Ex 1 Finding the Part

Find 15% of \$160

~~$$\frac{x}{160} = \frac{15}{100}$$~~

$$100x = 15 \cdot 160$$

$$\frac{100x}{100} = \frac{2400}{100}$$

$$x = 24$$

Ex 2 Finding the Part (Use multiplication)

a) Find 42% of 830 yards

$$0.42 \cdot (830)$$

$$348.60 \text{ yds}$$

b) Find 25% of 1680 cars

c) Find 140% of 60 miles

$$* 1.40(60)$$

$$84.00 \text{ miles}$$

d) Find 0.4% of 50 km

## Ex 3 Application Problem

Raley's market has 850 employees. Of these employees, 28% are students. How many actual students work at Raley's market?

$$\frac{x}{850} = \frac{28}{100} \quad \frac{14}{50} \quad \frac{7}{25} \quad \text{OK}$$

$$850 \cdot 0.28 = x$$

$$238 = x$$

Students

$$25x = 7 \cdot 850$$

$$\frac{25x}{25} = \frac{5950}{25}$$

$$x = 238$$

## Ex 4 Finding the Whole

a) 8 tables is 4% of what number of tables?  $\frac{8}{x} = \frac{4}{100}$   $x = 200$  tables

b) 135 tourists is 15% of what number of tourists?

$$\frac{135}{x} = \frac{15}{100} \quad x = 900 \text{ tourists}$$

## Ex 5 Application

At Newark Salt Works, 78 employees are absent because of an illness. If this is 5% of the total workers, how many are actually employed?

$$\frac{78}{x} = \frac{5}{100} \quad \frac{5x = 7800}{5} \quad x = 1560 \text{ workers}$$

## Ex 6 Application

A roof is expected to last 20 years before needing a replacement. If the roof is 15 years old now, what percent of the roof's life has been used?

$$\frac{3}{4} \frac{15}{20} = \frac{x}{100}$$

$$0.75 \rightarrow \boxed{75\%}$$

## Ex 7 Application

Rainfall this year was 33 inches, while normal rainfall is only 30 inches. What percent of normal rainfall is this year's rainfall?

$$\frac{33}{30} = \frac{x}{100} \quad 110\%$$