

# 2.6-2.7 Practice

1. Geologists in Antarctica find an average of 7 meteorite fragments every 500 tons of gravel they sift through. How much gravel must they sift through in order to get 100 fragments?

$$\frac{7 \text{ frag.}}{500 \text{ tons}} = \frac{100 \text{ frag.}}{x \text{ tons}}$$

$$7 \cdot x = 500 \cdot 100$$

$$\frac{7x}{7} = \frac{50,000}{7}$$

$$x = 7142.857143$$

7143 tons of gravel

2.

1. A girl scout troop uses 14 flashlight batteries on a three-night camping trip. If they are planning a seven-night trip, how many batteries should they bring?

$$\frac{14 \text{ batt.}}{3 \text{ nights}} = \frac{x \text{ batt.}}{7 \text{ nights}}$$

$$3 \cdot x = 14 \cdot 7$$

$$\frac{3x}{3} = \frac{98}{3}$$

$$x = 32.\bar{6} \xrightarrow{\text{round up}} \boxed{33 \text{ batteries}}$$

3. A cookie recipe calls for 3 eggs and makes 4 dozen cookies.

- a) How many dozen cookies could you make with a 12 eggs?

$$\frac{3 \text{ eggs}}{4 \text{ dozen}} = \frac{12 \text{ eggs}}{x \text{ dozen}}$$

$$3 \cdot x = 4 \cdot 12$$

$$\frac{3x}{3} = \frac{48}{3}$$

$$x = 16 \text{ dozen cookies}$$

- b) How many eggs would you need to make ~~18 dozen cookies~~ <sup>200 cookies</sup>?

$$\frac{3 \text{ eggs}}{4 \text{ dozen}} = \frac{x \text{ eggs}}{200 \text{ cookies}}$$

$$\frac{48 \text{ cookies}}{48 \text{ cookies}}$$

$$48 \cdot x = 3 \cdot 200$$

$$\frac{48x}{48} = \frac{600}{48}$$

$$x = 12.5 \rightarrow \boxed{13 \text{ eggs}}$$

4. A map of Connecticut is drawn to a scale where 2 inches on the map represents 35 miles.

a) If Greenwich and Stonington are 105 miles from each other, how far apart do they appear on the map?

$$\frac{2 \text{ inches}}{35 \text{ miles}} \leftrightarrow \frac{x \text{ inches}}{105 \text{ miles}}$$

$$35 \cdot x = 2 \cdot 105$$

$$\frac{35x}{35} = \frac{210}{35}$$

$$x = 6 \text{ inches}$$

b) On this same map, the road from Mystic to Hartford is 1.5 inches long. How far apart are Mystic and Hartford?

$$\frac{2 \text{ inches}}{35 \text{ miles}} \leftrightarrow \frac{1.5 \text{ inches}}{x \text{ miles}}$$

$$2 \cdot x = 35 \cdot 1.5$$

$$\frac{2x}{2} = \frac{52.5}{2}$$

$$x = 26.25 \text{ miles}$$

5. A bag of 8 apples costs \$1.50 at Sam's Orchard.

a) At this same rate, how much would 18 apples cost?

$$\frac{8 \text{ apples}}{\$1.50} = \frac{18 \text{ apples}}{\$x}$$

$$8 \cdot x = 1.50 \cdot 18$$

$$\frac{8x}{8} = \frac{27}{8}$$

$$x = 3.375$$

$$\boxed{\$3.38}$$

b) How many apples could you buy for \$5.00?

$$\frac{8 \text{ apples}}{\$1.50} = \frac{x \text{ apples}}{\$5.00}$$

$$1.50 \cdot x = 5.00 \cdot 8$$

$$\frac{1.50x}{1.50} = \frac{40}{1.50}$$

$$x = 26.\bar{6}$$

$$\boxed{26 \text{ apples}}$$

c) What is the unit cost per apple?

$$\frac{8 \text{ apples}}{\$1.50} = \frac{1 \text{ apple}}{x}$$

$$8 \cdot x = 1.50 \cdot 1$$

$$\frac{8x}{8} = \frac{1.50}{8}$$

$$x = 0.1875$$

$$\boxed{\$0.19/\text{apple}}$$

6. Will's Widget Works can produce two and a half tons of widgets in an 8 hour work day.

a) How many widgets can Will's Widget Works produce between 9 am and 2 pm?

$$\frac{2.5 \text{ tons}}{8 \text{ hrs}} \leftrightarrow \frac{x \text{ tons}}{5 \text{ hrs}}$$

$$8 \cdot x = 2.5 \cdot 5$$

$$\frac{8x}{8} = \frac{12.5}{8}$$

$$x = 1.5625 \text{ tons of widgets}$$

9 > 1 hr  
 10 > 1 hr  
 11 > 1 hr  
 12 > 1 hr  
 1 > 1 hr  
 2 > 1 hr

b) McGee Manufacturing, Inc. needs to order 17 tons of widgets. How many work days will it take Will's Widget Works to fill this order?

$$\frac{2.5 \text{ tons}}{8 \text{ hrs}} \leftrightarrow \frac{17 \text{ tons}}{x \text{ hrs}}$$

$$2.5 \cdot x = 8 \cdot 17$$

$$\frac{2.5x}{2.5} = \frac{136}{2.5}$$

$$x = 54.4 \text{ hrs}$$

$8 \text{ hr} = 1 \text{ work day}$   
 $16 \text{ hr} = 2 \text{ work days}$

$$\frac{54.4}{8} = 6.8 \text{ work days}$$

7. The ratio of boys to total students in Mrs. Smith's classes is 5:12.

a) What is the ratio of girls to boys?

b) If there are 60 students in all of her classes, how many are boys?

8. a)  $\frac{7}{b} = \frac{4}{5}$

b)  $\frac{4-f}{5} = \frac{f+1}{3}$