math Antics Worksheets

Name:

Date:

Cross Multiplying to Find an Unknown

P-PRO 1

Instructions: For each of these proportions (without units), use the cross-multiplying procedure you learned in the video to solve for the unknown number 'n'.

1 $\frac{n}{9} = \frac{2}{3}$

$n \times 3 = 9 \times 2$

$\frac{n \times 3}{3} = \frac{18}{3}$

$n = 6$

2 $\frac{5}{n} = \frac{2}{8}$

3 $\frac{n}{4} = \frac{12}{6}$

4 $\frac{2}{9} = \frac{n}{45}$

5 $\frac{3}{8} = \frac{n}{32}$

6 $\frac{7}{3} = \frac{21}{n}$

7 $\frac{7}{3} = \frac{35}{n}$

8 $\frac{n}{6} = \frac{5}{30}$

math Antics Worksheets

Name:

Date:

Cross Multiplying to Find an Unknown - Set 2

P-PRO 2

Instructions: For each of these proportions (without units), use the cross-multiplying procedure you learned in the video to solve for the unknown number 'n'. You can use a calculator for this set.

1 $\frac{n}{7} = \frac{2}{5}$

$n \times 5 = 7 \times 2$

$\frac{n \times 5}{5} = \frac{14}{5}$

$n = 2.8$

2 $\frac{8}{n} = \frac{15}{6}$

3 $\frac{n}{5} = \frac{3}{10}$

4 $\frac{7}{12} = \frac{n}{6}$

5 $\frac{3}{5} = \frac{n}{32}$

6 $\frac{4}{3} = \frac{51}{n}$

7 $\frac{5}{7} = \frac{1.2}{n}$

8 $\frac{n}{10} = \frac{3}{2.5}$

math Antics Worksheets

Name:

Date:

Proportion Word Problems

P-PRO 3

Instructions: Use proportions to answer each of these word problems. You can use a calculator.

1 If 2 liters of sea water contain 70 grams of salt, how much salt is in 32 liters of sea water?

$$\frac{70 \text{ grams}}{2 \text{ liters}} = \frac{n \text{ grams}}{32 \text{ liters}}$$

$$70 \times 32 = 2 \times n$$

$$\frac{2{,}240}{2} = \frac{2 \times n}{2}$$

$$n = 1{,}120 \text{ grams}$$

2 If it takes 930 kg of food to feed a pair of elephants for 3 days, how much food would you need to feed them for a week?

3 If a fuel efficient car can go 210 miles on 4 gallons of fuel, how far can it go on 12 gallons?

4 If a farmer gets 340 bushels of corn from 2 acres of land, how many bushels can they get from 15 acres?

5 A factory can make 20 toasters in a half-hour (0.5 hrs) How many toasters can the factory make in 6.5 hours?

6 On a scaled drawing, a building measures 4.5 cm tall. If the scale of the drawing is 25 meters per 2 cm, how tall is the actual building?

math Antics Worksheets

Name:

Date:

Proportion Word Problems - Set 2

P-PRO 4

Instructions: Use proportions to answer each of these word problems. You can use a calculator.

1. A rain gauge collected 0.2 inches of rain in 30 minutes. If it keeps raining at the same rate, what's the total time it will take to collect 1 inch of rain?

2. A biologist counted 15 squirrels in 3 acres of forest. Based on that data, how many squirrels would be expected to inhabit a 275 acre forest?

3. A runner burned 120 calories on a 1.6 km run. How many calories would they burn on a 5 km run?

4. If 3 oranges cost $1.75, how much would 20 oranges cost?

5. If it takes 2.3 gallons of milk to make 2 pounds of cheese, how many pounds of cheese can you make with 50 gallons of milk?

6. If you need 8 oz of chocolate chips to make 1.6 lbs of cookie dough, how many ounces of chocolate chips will you need to make 7 pounds of cookie dough?

math Antics Worksheets

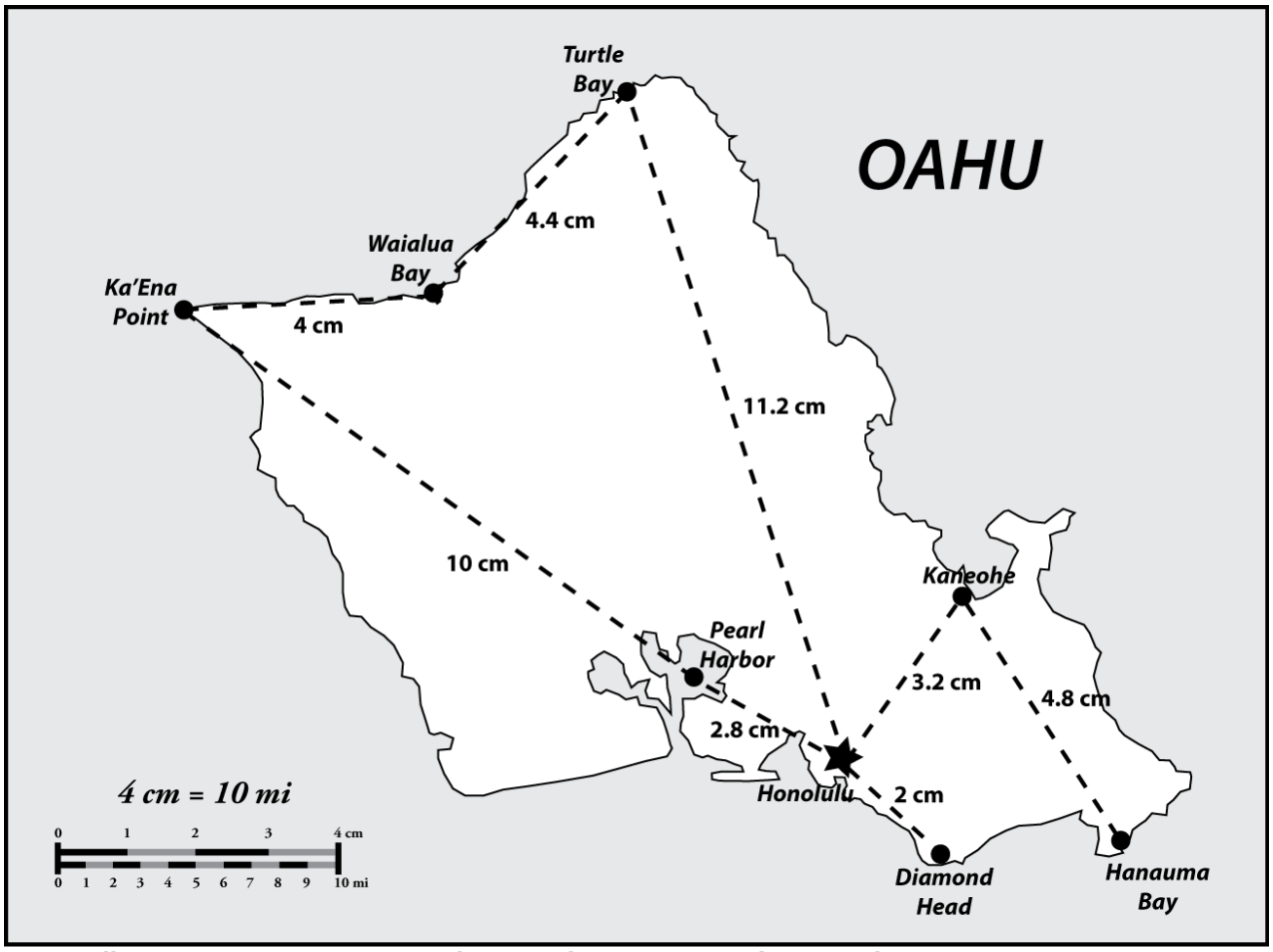
Name:

Date:

Scaled Drawing Problems - page 1

P-PRO 5

Instructions: Use this map to answer the questions below and on the following page.



note: all measurements are approximate, printout may not be to scale

1 How many miles is it from Honolulu to Diamond Head?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{2 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 2$$

$$\frac{4 \times n}{4} = \frac{20}{4}$$

$n = 5$ miles

2 How many miles is it from Honolulu to Pearl Harbor?

math Antics Worksheets

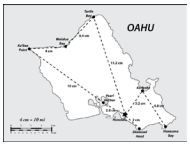
Name:

Date:

Scaled Drawing Problems - page 2

P-PRO 6

Instructions: Use the map on the previous page to answer these questions.



see previous page

3 How many miles is it from Honolulu to Turtle Bay?

4 How many miles is it from Turtle Bay to Waialua Bay?

5 How many miles is it from Pearl Harbor to Ka'Ena Point?

6 How many miles is it from Honolulu to Kaneohe?

7 How many miles is it from Kaneohe to Hanauma Bay?

8 How many miles is it from Ka'Ena Point to Waialua Bay?

math Antics
Exercises

Name:

Date:

Proportions

1 Find the missing number 'n' by cross multiplying.

$$\frac{n}{8} = \frac{3}{4}$$

2 Find the missing number 'n' by cross multiplying.

$$\frac{3}{2} = \frac{n}{12}$$

3 Find the missing number 'n' in this proportion by cross multiplying.

$$\frac{60 \text{ mi}}{5 \text{ hr}} = \frac{n \text{ mi}}{8 \text{ hr}}$$

4 A factory makes 12 bikes in 3 hours. If it keeps making bikes at the same rate, how many bikes will it have made in 8 hours? *(hint: set up a proportion.)*

5 If it takes 2 cups of flour to make 45 cookies, how many cups of flour will it take to make 135 cookies? *(hint: set up a proportion.)*

6 On a map, two cities measure 6.2 cm apart. If the scale of the map is 5 cm per 10 miles, then how many miles apart are the cities? *(hint: set up a proportion.)*

math Antics Worksheets

Name: _____

Date: _____

Cross Multiplying to Find an Unknown

P-PRO 1

Instructions: For each of these proportions (without units), use the cross-multiplying procedure you learned in the video to solve for the unknown number 'n'.

1 $\frac{n}{9} = \frac{2}{3}$

$n \times 3 = 9 \times 2$

$\frac{n \times 3}{3} = \frac{18}{3}$

$n = 6$

2 $\frac{5}{n} = \frac{2}{8}$

$5 \times 8 = n \times 2$

$\frac{40}{2} = \frac{n \times 2}{2}$

$n = 20$

3 $\frac{n}{4} = \frac{12}{6}$

$n \times 6 = 4 \times 12$

$\frac{n \times 6}{6} = \frac{48}{6}$

$n = 8$

4 $\frac{2}{9} = \frac{n}{45}$

$2 \times 45 = 9 \times n$

$\frac{90}{9} = \frac{9 \times n}{9}$

$n = 10$

5 $\frac{3}{8} = \frac{n}{32}$

$3 \times 32 = 8 \times n$

$\frac{96}{8} = \frac{8 \times n}{8}$

$n = 12$

6 $\frac{7}{3} = \frac{21}{n}$

$7 \times n = 3 \times 21$

$\frac{7 \times n}{7} = \frac{63}{7}$

$n = 9$

7 $\frac{7}{3} = \frac{35}{n}$

$7 \times n = 3 \times 35$

$\frac{7 \times n}{7} = \frac{105}{7}$

$n = 15$

8 $\frac{n}{6} = \frac{5}{30}$

$n \times 30 = 6 \times 5$

$\frac{n \times 30}{30} = \frac{30}{30}$

$n = 1$

math Antics Worksheets

Name:

Date:

Cross Multiplying to Find an Unknown - Set 2

P-PRO 2

Instructions: For each of these proportions (without units), use the cross-multiplying procedure you learned in the video to solve for the unknown number 'n'. You can use a calculator for this set.

1 $\frac{n}{7} = \frac{2}{5}$

$n \times 5 = 7 \times 2$

$\frac{n \times 5}{5} = \frac{14}{5}$

$n = 2.8$

2 $\frac{8}{n} = \frac{15}{6}$

$8 \times 6 = n \times 15$

$\frac{48}{15} = \frac{n \times 15}{15}$

$n = 3.2$

3 $\frac{n}{5} = \frac{3}{10}$

$n \times 10 = 5 \times 3$

$\frac{n \times 10}{10} = \frac{15}{10}$

$n = 1.5$

4 $\frac{7}{12} = \frac{n}{6}$

$7 \times 6 = 12 \times n$

$\frac{42}{12} = \frac{12 \times n}{12}$

$n = 3.5$

5 $\frac{3}{5} = \frac{n}{32}$

$3 \times 32 = 5 \times n$

$\frac{96}{5} = \frac{5 \times n}{5}$

$n = 19.2$

6 $\frac{4}{3} = \frac{51}{n}$

$4 \times n = 3 \times 51$

$\frac{4 \times n}{4} = \frac{153}{4}$

$n = 38.25$

7 $\frac{5}{7} = \frac{1.2}{n}$

$5 \times n = 7 \times 1.2$

$\frac{5 \times n}{5} = \frac{8.4}{5}$

$n = 1.68$

8 $\frac{n}{10} = \frac{3}{2.5}$

$n \times 2.5 = 10 \times 3$

$\frac{n \times 2.5}{2.5} = \frac{30}{2.5}$

$n = 12$

math Antics Worksheets

Name: _____

Date: _____

Proportion Word Problems

P-PRO 3

Instructions: Use proportions to answer each of these word problems. You can use a calculator.

1 If 2 liters of sea water contain 70 grams of salt, how much salt is in 32 liters of sea water?

$$\frac{70 \text{ grams}}{2 \text{ liters}} = \frac{n \text{ grams}}{32 \text{ liters}}$$

$$70 \times 32 = 2 \times n$$

$$\frac{2{,}240}{2} = \frac{2 \times n}{2}$$

n = 1,120 grams

2 If it takes 930 kg of food to feed a pair of elephants for 3 days, how much food would you need to feed them for a week?

$$\frac{930 \text{ kg}}{3 \text{ days}} = \frac{n \text{ kg}}{7 \text{ days}}$$

$$930 \times 7 = 3 \times n$$

$$\frac{6{,}510}{3} = \frac{3 \times n}{3}$$

n = 2,170 kg

3 If a fuel efficient car can go 210 miles on 4 gallons of fuel, how far can it go on 12 gallons?

$$\frac{210 \text{ mi}}{4 \text{ gal}} = \frac{n \text{ mi}}{12 \text{ gal}}$$

$$210 \times 12 = 4 \times n$$

$$\frac{2{,}520}{4} = \frac{4 \times n}{4}$$

n = 630 mi

4 If a farmer gets 340 bushels of corn from 2 acres of land, how many bushels can they get from 15 acres?

$$\frac{2 \text{ acres}}{340 \text{ bushels}} = \frac{15 \text{ acres}}{n \text{ bushels}}$$

$$2 \times n = 340 \times 15$$

$$\frac{2 \times n}{2} = \frac{5{,}100}{2}$$

n = 2,550 bushels

5 A factory can make 20 toasters in a half-hour (0.5 hrs) How many toasters can the factory make in 6.5 hours?

$$\frac{20 \text{ toasters}}{0.5 \text{ hours}} = \frac{n \text{ toasters}}{6.5 \text{ hours}}$$

$$20 \times 6.5 = 0.5 \times n$$

$$\frac{130}{0.5} = \frac{0.5 \times n}{0.5}$$

n = 260 toasters

6 On a scaled drawing, a building measures 4.5 cm tall. If the scale of the drawing is 25 meters per 2 cm, how tall is the actual building?

$$\frac{2 \text{ cm}}{25 \text{ m}} = \frac{4.5 \text{ cm}}{n \text{ m}}$$

$$2 \times n = 25 \times 4.5$$

$$\frac{2 \times n}{2} = \frac{112.5}{2}$$

n = 56.25 m

math Antics Worksheets

Name: _____

Date: _____

Proportion Word Problems - Set 2

P-PRO 4

Instructions: Use proportions to answer each of these word problems. You can use a calculator.

1 A rain gauge collected 0.2 inches of rain in 30 minutes. If it keeps raining at the same rate, what's the total time it will take to collect 1 inch of rain?

$$\frac{0.2 \text{ in}}{30 \text{ min}} = \frac{1 \text{ in}}{n \text{ min}}$$

$$0.2 \times n = 30 \times 1$$

$$\frac{0.2 \times n}{0.2} = \frac{30}{0.2}$$

$n = 150$ min

2 A biologist counted 15 squirrels in 3 acres of forest. Based on that data, how many squirrels would be expected to inhabit a 275 acre forest?

$$\frac{15 \text{ squirrels}}{3 \text{ acres}} = \frac{n \text{ squirrels}}{275 \text{ acres}}$$

$$15 \times 275 = 3 \times n$$

$$\frac{4{,}125}{3} = \frac{3 \times n}{3}$$

$n = 1{,}375$ squirrels

3 A runner burned 120 calories on a 1.6 km run. How many calories would they burn on a 5 km run?

$$\frac{1.6 \text{ km}}{120 \text{ cal}} = \frac{5 \text{ km}}{n \text{ cal}}$$

$$1.6 \times n = 120 \times 5$$

$$\frac{1.6 \times n}{1.6} = \frac{600}{1.6}$$

$n = 375$ cal

4 If 3 oranges cost $1.75, how much would 20 oranges cost?

$$\frac{3 \text{ oranges}}{1.75 \text{ dollars}} = \frac{20 \text{ oranges}}{n \text{ dollars}}$$

$$3 \times n = 1.75 \times 20$$

$$\frac{3 \times n}{3} = \frac{35}{3}$$

$n = \$11.67$

5 If it takes 2.3 gallons of milk to make 2 pounds of cheese, how many pounds of cheese can you make with 50 gallons of milk?

$$\frac{2.3 \text{ gal}}{2 \text{ lbs}} = \frac{50 \text{ gal}}{n \text{ lbs}}$$

$$2.3 \times n = 2 \times 50$$

$$\frac{2.3 \times n}{2.3} = \frac{100}{2.3}$$

$n = 43.5$ lbs

6 If you need 8 oz of chocolate chips to make 1.6 lbs of cookie dough, how many ounces of chocolate chips will you need to make 7 pounds of cookie dough?

$$\frac{8 \text{ oz}}{1.6 \text{ lbs}} = \frac{n \text{ oz}}{7 \text{ lbs}}$$

$$8 \times 7 = 1.6 \times n$$

$$\frac{56}{1.6} = \frac{1.6 \times n}{1.6}$$

$n = 35$ oz

math Antics Worksheets

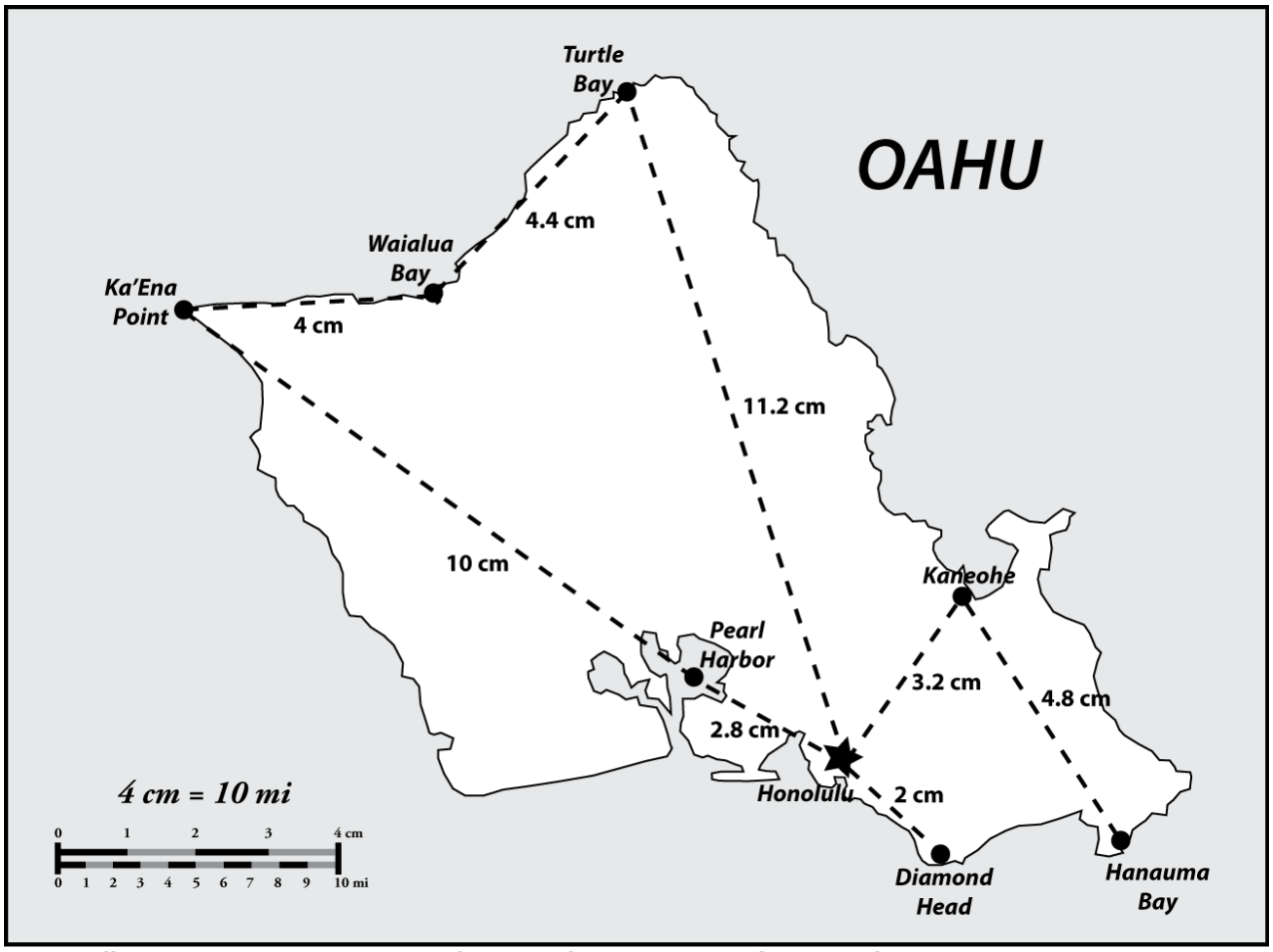
Name:

Date:

Scaled Drawing Problems - page 1

P-PRO 5

Instructions: Use this map to answer the questions below and on the following page.



note: all measurements are approximate, printout may not be to scale

1 How many miles is it from Honolulu to Diamond Head?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{2 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 2$$

$$\frac{4 \times n}{4} = \frac{20}{4}$$

$n = 5$ miles

2 How many miles is it from Honolulu to Pearl Harbor?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{2.8 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 2.8$$

$$\frac{4 \times n}{4} = \frac{28}{4}$$

$n = 7$ miles

math Antics Worksheets

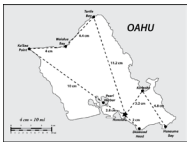
Name:

Date:

Scaled Drawing Problems - page 2

P-PRO 6

Instructions: Use the map on the previous page to answer these questions.



see previous page

3 How many miles is it from Honolulu to Turtle Bay?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{11.2 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 11.2$$

$$\frac{4 \times n}{4} = \frac{112}{4}$$

n = 28 miles

4 How many miles is it from Turtle Bay to Waialua Bay?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{4.4 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 4.4$$

$$\frac{4 \times n}{4} = \frac{44}{4}$$

n = 11 miles

5 How many miles is it from Pearl Harbor to Ka'Ena Point?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{10 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 10$$

$$\frac{4 \times n}{4} = \frac{100}{4}$$

n = 25 miles

6 How many miles is it from Honolulu to Kaneohe?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{3.2 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 3.2$$

$$\frac{4 \times n}{4} = \frac{32}{4}$$

n = 8 miles

7 How many miles is it from Kaneohe to Hanauma Bay?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{4.8 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 4.8$$

$$\frac{4 \times n}{4} = \frac{48}{4}$$

n = 12 miles

8 How many miles is it from Ka'Ena Point to Waialua Bay?

$$\frac{4 \text{ cm}}{10 \text{ mi}} = \frac{4 \text{ cm}}{n \text{ mi}}$$

$$4 \times n = 10 \times 4$$

$$\frac{4 \times n}{4} = \frac{40}{4}$$

n = 10 miles

math Antics
Exercises

Name:

Date:

Proportions

1 Find the missing number 'n' by cross multiplying.

$$\frac{n}{8} = \frac{3}{4}$$

$n \times 4 = 8 \times 3$

$\frac{n \times 4}{4} = \frac{24}{4}$

$n = 6$

2 Find the missing number 'n' by cross multiplying.

$$\frac{3}{2} = \frac{n}{12}$$

$3 \times 12 = 2 \times n$

$\frac{36}{2} = \frac{2 \times n}{2}$

$n = 18$

3 Find the missing number 'n' in this proportion by cross multiplying.

$$\frac{60 \text{ mi}}{5 \text{ hr}} = \frac{n \text{ mi}}{8 \text{ hr}}$$

$60 \times 8 = 5 \times n$

$\frac{480}{5} = \frac{5 \times n}{5}$

$n = 96$ mi

4 A factory makes 12 bikes in 3 hours. If it keeps making bikes at the same rate, how many bikes will it have made in 8 hours? *(hint: set up a proportion.)*

$\frac{12 \text{ bikes}}{3 \text{ hrs}} = \frac{n \text{ bikes}}{8 \text{ hrs}}$

$12 \times 8 = 3 \times n$

$\frac{96}{3} = \frac{3 \times n}{3}$

$n = 32$ bikes

5 If it takes 2 cups of flour to make 45 cookies, how many cups of flour will it take to make 135 cookies? *(hint: set up a proportion.)*

$\frac{2 \text{ cups}}{45 \text{ cookies}} = \frac{n \text{ cups}}{135 \text{ cookies}}$

$2 \times 135 = n \times 45$

$\frac{270}{45} = \frac{n \times 45}{45}$

$n = 6$ cups

6 On a map, two cities measure 6.2 cm apart. If the scale of the map is 5 cm per 10 miles, then how many miles apart are the cities? *(hint: set up a proportion.)*

$\frac{5 \text{ cm}}{10 \text{ mi}} = \frac{6.2 \text{ cm}}{n \text{ mi}}$

$5 \times n = 10 \times 6.2$

$\frac{5 \times n}{5} = \frac{62}{5}$

$n = 12.4$ mi

See Video for step-by-step solutions to each problem.