

Customary Conversions			
Measure	Larger Unit	→	Smaller Unit
	1 foot (ft)	=	12 inches (in.)
	1 yard (yd)	=	3 feet
	1 mile (mi)	=	5,280 feet
	1 pound (lb)	=	16 ounces (oz)
	1 ton (T)	=	2,000 pounds
	1 cup (c)	=	8 fluid ounces (fl oz)
	1 pint (pt)	=	2 cups
	1 quart (qt)	=	2 pints
	1 gallon (gal)	=	4 quarts

④

$$\frac{28 \cancel{\text{ inches}}}{1} \times \frac{1 \cancel{\text{ foot}}}{12 \cancel{\text{ inches}}}$$

$$\frac{28}{12} = 2\frac{4}{12}$$

↓

### Guided Practice

Complete. (Examples 1 and 3)

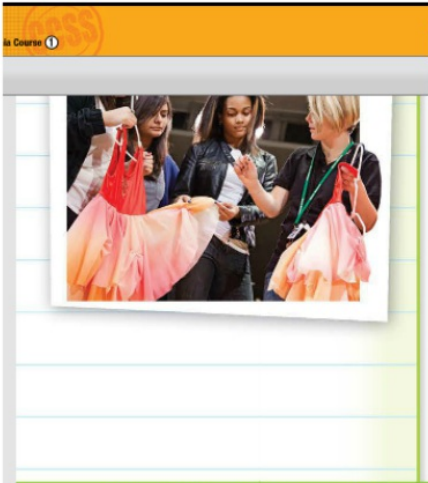
1.  $5\frac{1}{3}$  yd = 16 ft

2.  $4\frac{1}{2}$  pt = 9 c

3. 12 qt = 3 gal

4. 28 in. =  $2\frac{1}{3}$  ft

Show your work. →



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Handwritten work on a whiteboard:

$$12 \text{ qt}$$
$$\cancel{12 \text{ qt}} \times 1 \text{ gallon}$$

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$$\cancel{4 \text{ quarts}}$$
  
$$3 \text{ gal}$$

### Guided Practice

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Handwritten work for problem 1:

$$5 \frac{1}{3} = \frac{16}{3} \text{ yds}$$

$$\frac{16}{3} \text{ yds} \times \frac{3 \text{ ft.}}{1 \text{ yd.}}$$

$$\frac{48}{3} = 16$$

## Guided Practice

Complete. (Examples 1 and 3)

1.  $5 \frac{1}{3} \text{ yd} = \underline{16} \text{ ft}$     2.  $4 \frac{1}{2} \text{ pt} = \underline{9} \text{ c}$     3.  $12 \text{ qt} = \underline{3} \text{ gal}$     4.  $28 \text{ in.} = \underline{2 \frac{1}{3}} \text{ ft}$

Show your work. →

5. A large grouper can weigh  $\frac{1}{3}$  ton. How much does a large grouper weigh to the nearest pound? (Example 2) 667 lb

6. The world's narrowest electric vehicle is about 35 inches wide. How wide is this vehicle to the nearest foot? (Example 4) 3 ft

7.  **Building on the Essential Question** How can you use ratios to convert units of measurement?

**Sample answer: You can use ratios with numerators and denominators that represent the same amount.**

**Choose the ratio that allows you to divide out the common units.**

### Rate Yourself!

Are you ready to  
Shade the section



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**Complete.** (Examples 1 and 3)

1.  $18 \text{ ft} = \underline{6} \text{ yd}$

Show  
your  
work.

2.  $2 \text{ lb} = \underline{32} \text{ oz}$

3.  $6.5 \text{ c} = \underline{52} \text{ fl oz}$

4.  $2 \text{ mi} = \underline{10,560} \text{ ft}$

5.  $5,000 \text{ lb} = \underline{2\frac{1}{2}} \text{ T}$

6.  $2\frac{3}{4} \text{ qt} = \underline{5\frac{1}{2}} \text{ pt}$

7. One of the largest pumpkins ever grown weighed about  $\frac{3}{4}$  ton. How many pounds did the pumpkin weigh? (Example 2)

1,500 lb

8. A 40-foot power boat is for sale by owner. How long is the boat to the nearest yard?

(Example 4)

13 yd



9. A 3-pound pork loin can be cut into 10 pork chops of equal weight. How many ounces is each pork chop?  $4\frac{4}{5}$  oz

10. **CCSS Model with Mathematics** Will a 2-quart pitcher hold the entire recipe of citrus punch given at the right? Explain your reasoning.

**No;  $2 + 2 + \frac{1}{4} + \frac{1}{3} + 4 = 8\frac{7}{12}$  c punch and a 2-qt**

**pitcher holds  $2 \text{ qt} \times \frac{2 \text{ pt}}{1 \text{ qt}} \times \frac{2 \text{ c}}{1 \text{ pt}} = 2 \times 2 \times 2 \text{ c}$  or**

**$8 \text{ c}$ . Since  $8 \text{ c} < 8\frac{7}{12} \text{ c}$ , the pitcher will not hold**

**all of the punch.**

#### Citrus Punch Drink

2 cups orange juice

2 cups grapefruit juice

$\frac{1}{4}$  cup apricot nectar

$\frac{1}{3}$  cup pineapple juice

4 cups ginger ale



11. **CCSS Multiple Representations** Use the graph at the right.

a. **Numbers** What does an ordered pair from this graph

represent? The x-value represents the number of quarts and the y-value represents the equivalent number of gallons.

b. **Measurement** Use the graph to find the capacity in quarts of a 2.5-gallon container. Explain your reasoning.

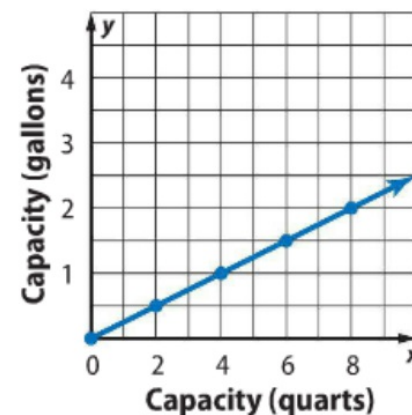
Sample answer: The point on the line whose y-value is equal to 2.5 is (10, 2.5), so 10 qt = 2.5 gal.

c. **Unit Rate** What is the unit rate that converts gallons to quarts?

$\frac{4 \text{ qt}}{1 \text{ gal}}$

d. **Expressions** Write an expression you could use to convert 2.5 gallons to quarts.

$2.5 \text{ gal} \times \frac{4 \text{ qt}}{1 \text{ gal}}$





## H.O.T. Problems Higher Order Thinking

Sample answers: 12 and 15

12. **CCSS Model with Mathematics** Write a real-world problem in which you would need to convert pints to cups. Annabelle is making brownies. The recipe calls for 2 cups of sour cream. She has 2 pints of sour cream. Does she have enough sour cream to make the brownies?

- CCSS Persevere with Problems** Fill in each  $\bigcirc$  with  $<$ ,  $>$ , or  $=$  to make a true sentence. Justify your answers.

13. 16 in.  $\bigcirc$   $1\frac{1}{2}$  ft

16 in. is equivalent to 1 ft 4 in.;  $1\frac{1}{2}$  ft is equivalent to 1 ft 6 in.; So, 16 in.  $<$   $1\frac{1}{2}$  ft.

14.  $8\frac{3}{4}$  gal  $\bigcirc$  32 qt

$8\frac{3}{4}$  gal is equivalent to 35 qt; Since 35 qt  $>$  32 qt,  $8\frac{3}{4}$  gal  $>$  32 qt.

15. **CCSS Persevere with Problems** Give two different measurements that are equivalent to  $2\frac{1}{2}$  quarts. 5 pt; 80 fl oz

16. **CCSS Model with Mathematics** Write a real-world problem that can be represented by the graph. Sample answer: To determine his Body Mass Index, Patrick needs to know his height in inches. He knows one foot equals 12 inches. He is 5 feet tall. How tall is he in inches?

