

# Lesson 11-2

Tuesday, February 25, 2020 1:18 PM

Name MB 645

**Solve & Share**

A recipe makes 16 cups of soup. How many quarts does the recipe make? Remember, there are 2 cups in a pint and 2 pints in a quart. Solve this problem any way you choose!

$4$  cups = 1 quart  
16 cups =  $4$  quarts

$16 \text{ cups} \div 2 \text{ cups} = 8 \text{ pints}$   
 $8 \text{ pints} \div 2 \text{ pints} = 4 \text{ quarts}$

16 cups = 4 quarts.

You can use reasoning to help you convert between different units.

**Lesson 11-2**  
**Convert Customary Units of Capacity**

**I can ...**  
convert customary units of capacity.

Content Standards: 5.MD.A.1, 5.NBT.B.5, 5.NBT.B.6  
Mathematical Practices: MP.2, MP.8

**Look Back!** **MP.8 Generalize** Is the number of cups greater than or less than the number of quarts? Why do you think that is?

Cups are less than quarts so it takes more cups to equal the same amount of quarts.

Digital Resources at PearsonRealize.com Topic 11 | Lesson 11-2 645

**A** Sue is making punch. She needs  $3\frac{3}{4}$  cups of orange juice and 5 pints of lemonade. How many fluid ounces of orange juice and how many quarts of lemonade does she need?

You can multiply or divide to convert one unit of capacity to a different one.



- 1 gallon (gal) = 4 quarts (qt)
- 1 quart = 2 pints (pt)
- 1 pint = 2 cups (c)
- 1 cup = 8 fluid ounces (fl oz)



**B** To change a larger unit to a smaller unit, **multiply**.

$$3\frac{3}{4} \text{ c} = \square \text{ fl oz}$$



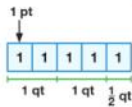
$$3\frac{3}{4} \times 8 = (3 \times 8) + \left(\frac{3}{4} \times 8\right)$$

$$= 24 + 6 = 30$$

So,  $3\frac{3}{4}$  cups = 30 fluid ounces.

**C** To change a smaller unit to a larger unit, **divide**.

$$5 \text{ pt} = \square \text{ qt}$$



Find  $5 \div 2$ .

$$5 \div 2 = \frac{5}{2} = 2\frac{1}{2}$$

So, 5 pints =  $2\frac{1}{2}$  quarts.

2 pints equals 1 quart.



**Convince Me!** **MP.8 Generalize** When you convert from pints to quarts, why do you divide?

You divide when you convert pints to quarts because you are going from a smaller unit to a larger unit.

## ★ Guided Practice

### Do You Understand?

1. **MP.2 Reasoning** Why would you change 4 gallons 5 quarts to 5 gallons 1 quart?

Since 4 qt = 1 gal; 5 qts can be converted to another gallon with 1 qt left over.

2. Why is  $\frac{1}{8}$  cup equal to 1 fluid ounce?

1 cup = 8 fl oz. One cup divided into 8 equal parts. Each part would equal 1 oz.

### Do You Know How?

In 3–8, convert each unit of capacity.

3. 32 c = 2 gal    4.  $\frac{1}{2}$  qt = 2 gal  
 5 qt = 2 c    5 qt = 2 c    16 qt = 8 gal    8 qt = 4 gal  
 5. 48 qt = 6 gal    6.  $6\frac{1}{8}$  qt = 7 qt 1 pt  
 7. 3 qt 1 pt = 7 pt  
 3 qt = 6 pt    6 pt + 1 pt = 7 pt  
 8. 9 pt = 1 qt 3 pt or 4  $\frac{1}{2}$  qt  
 9 pt = 2 pt = 4  $\frac{1}{2}$



You may need to convert more than once.

Complete 17, 27, & 28

## ★ Independent Practice

In 9–20, convert each unit of capacity.

9. 10 pt = \_\_\_ qt    10. 48 fl oz = \_\_\_ c    11.  $\frac{1}{2}$  c = \_\_\_ pt  
 12.  $9\frac{1}{4}$  pt = \_\_\_ c    13. 36 pt = \_\_\_ qt    14. 30 qt = \_\_\_ gal \_\_\_ qt  
 15. 1 qt = \_\_\_ gal    16. 5 gal = \_\_\_ c    17. 1 gal 1 c = 136 fl oz  
 1 gal = 4 qt = 4 qt    4 qt = 8 pt  
 8 pt = 2 c = 16 c    16 c = 8 oz = 128 oz  
 18. 7 c = \_\_\_ fl oz    19. 72 pt = \_\_\_ gal    20.  $\frac{1}{3}$  pt = \_\_\_ c    1 c = 8 oz

21. Complete the table to show equivalent measures.

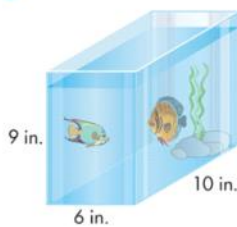
Gallons	Quarts	Pints	Cups	Fluid Ounces
1		8		
2				256

128 oz  
 + 8 oz  
 136 oz

\*For another example, see Set B on page 689.

## Math Practices and Problem Solving

For 22–24, use the aquarium.



22. The class aquarium holds 2 gallons of water. How many cups is this? How many fluid ounces is this?
23. Susan finds that 2 pints, 1 cup of water has evaporated from the class aquarium. How many pints of water are left in the aquarium?
24. If all of the dimensions of the aquarium were doubled, what would be the volume of the new aquarium?
25. Carrie has 3 gallons of paint. Bryan has 10 quarts of paint. How many more pints of paint does Carrie have than Bryan?
26. **MP.2 Reasoning** Lorelei filled her 5-gallon jug with water. How many times could she fill her 2-quart canteen with water from the jug? Explain.

27. **Higher Order Thinking** A recipe calls for 3 tablespoons of pineapple juice. A can of pineapple juice is 12 fluid ounces. How many teaspoons of juice are in the can?

**DATA** 1 tablespoon (tbsp) = 3 teaspoons (tsp)  
1 fluid ounce (fl oz) = 2 tablespoons (tbsp)

$$12 \text{ fl oz} \times 2 \text{ Tbsp} = 24 \text{ Tbsp} \quad 24 \text{ Tbsp} \times 3 \text{ tsp} = 72 \text{ Tbsp}$$

### Common Core Assessment

28. Choose all the measurements that are greater than 4 cups.
29. Choose all the statements that are true.
- 30 fluid ounces  $30 \text{ fl oz} = 9 \text{ fl oz} = 3 \text{ c}$
- 2 pints  $2 \text{ pts} \times 2 \text{ c} = 4 \text{ c}$
- 3 pints  $3 \text{ pts} \times 2 \text{ c} = 6 \text{ c}$
- 1 quart  $1 \text{ qt} \times 2 \text{ pt} = 2 \text{ pt}$   $2 \text{ pt} \times 2 \text{ c} = 4 \text{ c}$
- 1 gallon  $1 \text{ gal} \times 4 \text{ qt} = 4 \text{ qt}$   $4 \text{ qt} \times 2 \text{ pt} = 8 \text{ pt}$   $8 \text{ pt} \times 2 \text{ c} = 16 \text{ c}$   $16 \text{ c} \times 2 \text{ c} = 32 \text{ c}$
- 15 pt < 2 gal
- 1 gal < 5 qt
- 12 fl oz > 2 c
- 2 qt 1 cup > 10 cups
- 20 pints = 10 quarts

648

Topic 11 | Lesson 11-2

© Pearson Education, Inc. 5