Convert Measurements

Name: _____

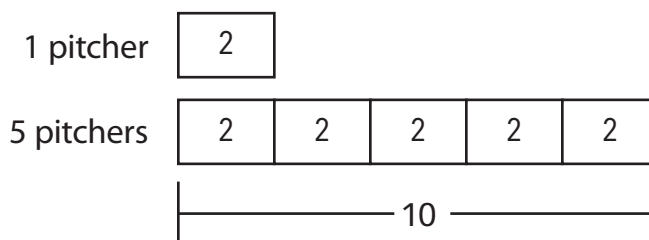**Study the example showing how to use multiplication to solve a measurement problem. Then solve problems 1–5.**

Example

Kian filled 5 pitchers with water. Each pitcher holds 2 liters. How many liters of water did Kian use to fill the pitchers?

| 1 pitcher | 2 | | | | |

| 5 pitchers | 2 | 2 | 2 | 2 | 2 |
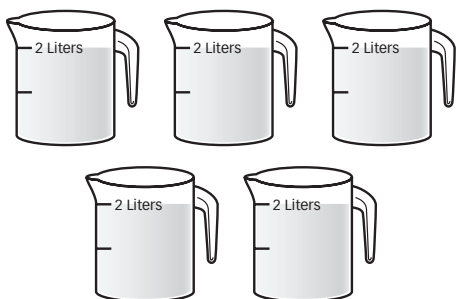
The picture shows that
$2 + 2 + 2 + 2 + 2 = 10$.

The bar model shows multiplication as a comparison, $5 \times 2 = 10$.

Kian used 10 liters of water.

1 Yvonne's house has 4 bedrooms. It takes 1 gallon of paint to paint each bedroom. How many gallons of paint are needed to paint all 4 bedrooms? Show how to add or multiply to find the answer.

_____

2 One granola bar has 5 grams of protein. A package has 6 granola bars. How many grams of protein are in a package? Draw a bar model to show how to find the answer.

Solution: _____

Solve.

3 Miranda's family brought 3 large coolers full of lemonade to the family picnic. Each cooler contains 8 liters of lemonade. How much lemonade did the family bring to the picnic?

Show your work.

Solution: The family brought _____ of lemonade.

4 The table below shows the number of grams of sugar in a 1-cup serving of each kind of fruit.

Fruit	Strawberries	Apples	Bananas
Grams of sugar in a 1-cup serving	7 g	13 g	18 g

a. How many grams of sugar are in 3 cups of strawberries?

_____

b. How many grams of sugar are in 2 cups of apples?

_____

c. Are there more grams of sugar in 3 cups of strawberries or 2 cups of apples? Explain.

_____

_____

5 Look at the table in problem 4. Madeleine made a strawberry-banana smoothie to share with her friends. She put 4 cups of strawberries and 2 cups of bananas in a blender. How many total grams of sugar are in the smoothie?

Show your work.

Solution: _____

Name: _____

Convert Units of Weight and Mass

Study the example showing how to convert from a larger unit to a smaller unit of weight and mass. Then solve problems 1–7.

Example

Eleanor bought a 3-pound watermelon and 32 ounces of strawberries. How much more does the watermelon weigh than the strawberries?

1 pound (lb) = 16 ounces (oz)

Write an expression to convert pounds to ounces. Let p stand for the number of pounds.

$p \times 16$

Find the weight of the watermelon in ounces. The watermelon weighs 48 ounces.

Substitute 3 for p.
$3 \times 16 = 48$

$48 - 32 = 16$

The watermelon weighs 16 ounces more than the strawberries.

1 John has a watermelon with a mass of 3 kilograms. Complete the bar model. Then write the mass of the watermelon in grams.

3 kilograms (kg)

1 kg	1 kg	
1,000 g	1,000 g	

_____ grams (g)

2 Write an expression that shows how to convert kilograms to grams. Use K to stand for the number of kilograms.

_____

3 Convert the units of mass.

2 kg = _____ g   4 kg = _____ g

Vocabulary

convert to change from one unit to another unit.

1 kilogram = 1,000 grams
↑   ↑
unit   unit

Solve.

4 Complete the table to convert from a larger unit to a smaller unit of weight.

Pounds (lb)	1	2	3	4	5	6	7
Ounces (oz)	16		48				112

5 Neil brought 2 pounds of grapes for fruit salad at the class picnic. There are 8 ounces of grapes left. How many ounces of grapes were used? Look at the table in problem 4 to help you answer the question.

Show your work.

Solution: _____

6 Choose *Yes* or *No* to tell whether the given weight is equal to 6 pounds.

a. 22 ounces ☐ Yes ☐ No

b. 96 ounces ☐ Yes ☐ No

c. 4 pounds, 32 ounces ☐ Yes ☐ No

d. 5 pounds, 16 ounces ☐ Yes ☐ No

7 An adult bottlenose dolphin has a mass of 200 kilograms. What is the mass of an adult bottlenose dolphin in grams?

1 kilogram = 1,000 grams

Show your work.

Solution: _____

Name: _____

Convert Units of Liquid Volume

Study the example showing how to convert from a larger unit to a smaller unit of liquid volume. Then solve problems 1–7.

Example

Josie made 4 quarts of iced tea for a family picnic. Her sister made 14 cups of punch for the picnic. Who made a greater amount of beverages?

Use a table to convert quarts to cups.

Quarts	1	2	3	4	5
Cups	4	8	12	16	20

1 quart = 4 cups

Josie made 4 quarts, or 16 cups of iced tea. 16 > 14

Josie made a greater amount of beverages.

1 The soccer coach has a container that holds 5 liters of water. How many milliliters of water does the container hold?

Fill in the table to answer the question.

Liters (L)	1	2	3	4	5
Milliliters (mL)	1,000		3,000		

The container holds _____ of water.

2 Write an expression that shows how to convert liters to milliliters. Use *L* to stand for the number of liters.

_____

3 Convert the units of liquid volume.

6 L = _____ mL $\frac{1}{2}$ L = _____ mL

Vocabulary

convert to change from one unit to another unit.

1 liter = 1,000 milliliters

  ↑   ↑
 unit   unit

Solve.

4 Carla had 2 liters of juice to share. She and her 3 friends each drank an equal amount of the juice. How many milliliters of juice did each friend have?

| 1 liter = 1,000 milliliters |

Show your work.

Solution: _____

5 Theo filled up a 3-liter watering can to water the garden. He has 750 milliliters of water left in the watering can. How many milliliters of water did Theo use?

Show your work.

Solution: _____

6 A small bottle contains 2 cups of juice. Do 5 small bottles of juice have a greater amount of juice than a 1-quart bottle of juice? Explain.

| 1 quart = 4 cups |

_____

_____

_____

_____

7 Rachel has a 4-liter jug of water. She fills 3 small vases each with 900 mL of water. How much water did she use? How much water is left in the jug?

Show your work.

Solution: _____

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Name: _____

Convert Measurements

Solve the problems.

1 How many weeks are in 2 years?

A 26 weeks   **C** 54 weeks

B 52 weeks   **D** 104 weeks

There are 52 weeks in a year.

2 How many cups of milk are in 8 quarts?

A 2 cups

B 12 cups

C 16 cups

D 32 cups

1 quart = 4 cups

Which is the larger unit, quarts or cups?
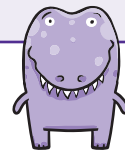
Jeff chose **A** as the correct answer. How did he get that answer?

_____

_____

_____

3 Stacia buys 6 yards of ribbon to make a costume. She has 2 feet of ribbon left over. How many feet of ribbon did Stacia use to make the costume?

Show your work.

1 yard = 3 feet

You can write an equation to show the relationship between yards and feet.

Solution: _____

Solve.

4 Which of the following is equal to 2 days, 12 hours? Circle the letter for all that apply.

1 day = 24 hours

   A 48 hours

   B 60 hours

   C 1 day, 36 hours

   D 1 day, 24 hours

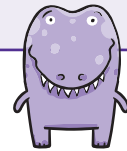**5** Jason is 5 foot 11 inches tall. Amy is 63 inches tall. Who is taller and by how much?

Do you compare the heights in inches or feet?

1 foot = 12 inches

Show your work.

Solution: _____

6 How many 250 mL glasses can be filled with 2 L of water?

A picture or a table can help you understand and solve this problem.

1 liter = 1,000 milliliters

Show your work.

Solution: _____