Liquid Volume

Name: _____

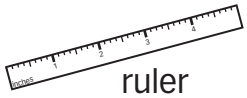
Prerequisite: Use Measurement Tools

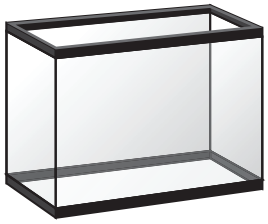
Study the example showing how to choose a tool to measure an object. Then solve problems 1–7.

Example

Which tool can you use to find out how much water the fish tank can hold?


scale


ruler




clock

measuring cup

Use the measuring cup. Fill the one-liter measuring cup with water, and pour it into the fish tank. Count how many times you pour a full liter into the tank. Then you know how much water the fish tank can hold.

1 Which tool can you use to find out how long the fish tank is?

_____

2 Which tool can you use to find out how tall the fish tank is?

_____

3 Which tool can you use to find out how heavy the fish tank is?

_____

Solve.

Chang emptied one full water bottle into a small bowl. The picture shows the result.

4 Which can hold more water, the bottle or the bowl? Explain your answer.

5 Do you think Chang could pour two full bottles of water into the bowl? Explain your answer.

6 Leo has a different-size bottle of water. He empties his bottle into a small bowl just like Chang's.

Will the bowl be full? Explain your answer.

7 Petra has some bottles of water exactly the same size as Chang's bottle. She empties 3 bottles of water into a different-size bowl. Do you think Chang's bowl or Petra's bowl is larger? Explain your thinking.

Name: _____

Estimate Liquid Volume

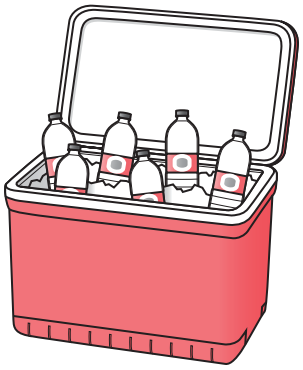
Study the example showing how to estimate liquid volume. Then solve problems 1–7.

Example

Jan is going to pour water into a picnic cooler. She is trying to estimate how many liters it can hold when it's full.

It looks like the cooler can hold about 12 bottles.

Since there would be space between the bottles, Jan estimates the cooler might hold about 15 liters of water.



1 The can of juice holds 1 liter. About how many liters could the pitcher hold? How did you decide?

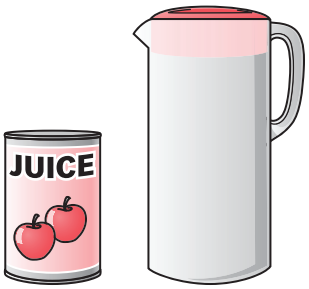
_____

_____

_____

_____

_____



1 liter ? liters

2 Which of these items could hold about 1 liter of water? Circle the letter for all that apply.

A a trash can **C** a coffee pot

B a bathtub **D** a flower vase

3 A kitchen sink holds about 40 liters of water. What could hold more than 40 liters of water? Circle the letter of the correct answer.

A a bathtub **C** a coffee cup

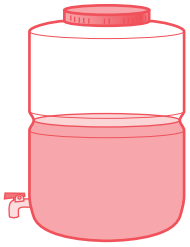
B a cooking pot **D** a cereal bowl

Vocabulary

liter a unit of capacity, or liquid volume. Some water bottles hold one liter of water.

Solve.

4 This juice dispenser has 3 liters of juice in it. About how many liters does this juice dispenser hold when it is full? Circle the letter of the correct answer.



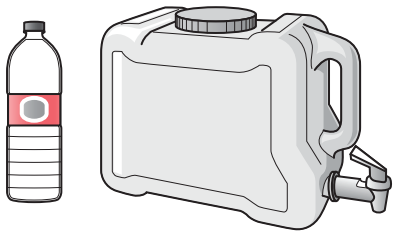
A 2 liters

B 3 liters

C 6 liters

D 10 liters

5 About how many liters of water can the large jug hold? Circle the letter of the correct answer.



A $\frac{1}{2}$ liter

B 1 liter

C 2 liters

D 8 liters

6 Explain how you estimated the answer to problem 5.

_____

_____

_____

_____

_____

7 Look closely at the 1-liter water bottle and the large jug in problem 5. Explain how to estimate the fraction of the large jug that can be filled with 1 liter of water.

_____

_____

_____

Name: _____

Solve Word Problems about Liquid Volume

Study the example showing how to solve a word problem about liquid volume. Then solve problems 1–8.

Example

Bridget fills 7 water coolers for the school picnic. Each cooler holds 9 liters of water. How many liters of water are in all the coolers?

Each cooler has the same amount of water, so you can multiply to find the total.

$7 \times 9 = 63$ liters

The coolers hold 63 liters of water.

1 Jose had a cooler with 25 liters of lemonade to take to school for his birthday party. Then he poured 1 liter from the cooler to keep at home. How many liters were left to take to school?

_____

2 Ms. Lyon brought a cooler with 24 liters of lemonade to school to serve her students. The students are sitting at 8 different tables. She gives the same amount of lemonade to students at each table. How many liters does each table get?

_____

3 Write a division sentence with an unknown to show how you solved problem 2.

_____

Solve.

4 Samuel takes 5 coolers to his basketball game. Each cooler holds 9 liters of water. How many liters of water altogether did he take to the game?

Show your work.

Solution: _____

5 Look at problem 4. If 3 coolers are completely empty after the game, how many liters of water are left?

Show your work.

Solution: _____

6 The fuel tank in Janice's car holds 60 liters of gas. She has 20 liters of gas in her tank. How much more gas does she need to fill up the tank?

Show your work.

Solution: _____

7 Bobby's aquarium holds 32 liters of water. He uses a 4-liter bucket to fill the tank. How many buckets of water are needed to fill the tank?

Show your work.

Solution: _____

8 Terry has pitchers that hold 2 liters and 5 liters. How can he use these pitchers to measure out exactly 3 liters of water?

_____

_____

Name: _____

Solve Problems About Liquid Volume

Solve the problems.

1 Jeff brought 12 liters of orange juice to a party. The guests drank 7 liters of orange juice. How many liters of orange juice were left?

Show your work.

Solution: _____

2 Cathy fills a 10-liter bucket with pond water. She uses a 2-liter jar to scoop out water from the pond and pours it into her bucket. How many times does Cathy need to scoop water from the pond to fill the bucket?

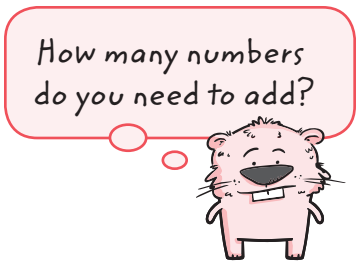
Show your work.

Solution: _____

3 Maria is in charge of making punch for the party. She adds 2 liters of water to 1 liter of orange juice and 2 liters of soda. Then she adds 1 liter of crushed strawberry juice and 2 liters of pineapple juice to the mixture. How many liters of punch does Maria make?

Show your work.

Solution: _____

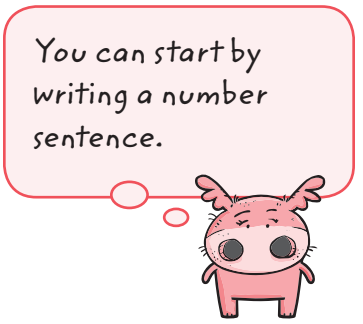


Solve.

4 Jessica has to fill a large aquarium with 48 liters of water. She owns a water jug that can hold 6 liters of water. How many times does she need to pour the water from the jug to fill the aquarium?

Show your work.

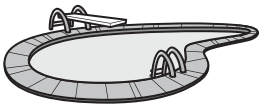
Solution: _____



5 Estimate whether each object holds less than, equal to, or more than a liter. Write *less, more,* or *equal.*

a.

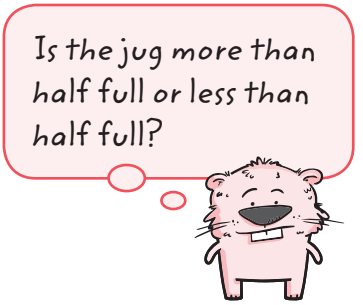
b.



c.

a. _____ **b.** _____ **c.** _____

6 This jug has 2 liters of water in it. Which is the best estimate for how much water the jug could hold? Circle the letter of the correct answer.



A 15 liters **C** 5 liters

B 10 liters **D** 2 liters

Alisha chose **A** as the correct answer.

Explain how you know she is wrong.

_____

_____

_____