

Measure Mission

Choose units, convert carefully, and solve real problems.

GRADE 4 • TEKS 4.8

4.8 "Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement..."

NAME _____

DATE _____

CHOOSE THE DIRECTION

A larger unit contains several smaller units. Change from a larger unit to a smaller unit by multiplying, and change from a smaller unit to a larger unit by dividing. Check whether your answer makes sense by deciding if the number should become greater or smaller.

WORKED EXAMPLE

A science fair jug holds 13 L of water.
How many milliliters does it hold?
Use 1 L = 1,000 mL.

1. Liters are larger than milliliters, so multiply.
2. $13 \times 1,000 = 13,000$.
3. The number is greater because the unit is smaller.

Answer: 13,000 mL

PRACTICE 6 problems

- 1** Mia measures a puppy's leash. It is 72 inches long. A foot contains 12 inches. How many feet long is the leash?

ANSWER _____

- 2** A bag of cat food has a mass of 5 pounds. Each pound contains 16 ounces. How many ounces of cat food are in the bag?

ANSWER _____

- 3** Jay fills 2 quarts of lemonade for a class picnic. Each quart holds 4 cups. How many cups of lemonade did Jay fill?

ANSWER _____

- 4** The school garden club works for 2 hours 25 minutes on Monday and 3 hours 40 minutes on Tuesday. What is the total time the club works?

ANSWER _____

- 5** A movie starts at 6:35 p.m. and ends at 8:10 p.m. How long is the movie?

ANSWER _____

- 6** A game costs \$12.45. You pay with \$20. Round the cost to the nearest dollar to estimate the change, then find the exact change.

ANSWER _____

APPLY IT Show your work

- 1** The robotics club uses 6 bottles of cleaning solution. Each bottle holds 500 mL. How many liters of solution does the club use? Use the table.

EQUIVALENT LIQUID VOLUMES

Liters	Milliliters
3 L	3,000 mL
6 L	6,000 mL

ANSWER _____

- 2** A gaming club has 3 rounds that each last 45 minutes. There is a 15-minute break after the first round and after the second round. If the club starts at 2:20 p.m., what time does it end?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A bike route to a community event is 2 miles 880 yards long. A student rides the route 3 times. Each mile equals 1,760 yards. How many yards does the student ride? Write the distance again in miles and yards. Explain why 13,200 yards is not 8 miles.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Mia measures a puppy's leash. It is 72 inches long. A foot contains 12 inches. How many feet long is the leash?	6 ft
2	A bag of cat food has a mass of 5 pounds. Each pound contains 16 ounces. How many ounces of cat food are in the bag?	80 oz
3	Jay fills 2 quarts of lemonade for a class picnic. Each quart holds 4 cups. How many cups of lemonade did Jay fill?	8 cups
4	The school garden club works for 2 hours 25 minutes on Monday and 3 hours 40 minutes on Tuesday. What is the total time the club works?	6 hours 5 minutes
5	A movie starts at 6:35 p.m. and ends at 8:10 p.m. How long is the movie?	1 hour 35 minutes
6	A game costs \$12.45. You pay with \$20. Round the cost to the nearest dollar to estimate the change, then find the exact change.	Estimate: \$8; exact change: \$7.55

PART 2 • APPLY IT

- 3 L** Multiply 6×500 mL to get 3,000 mL. The table shows that 3,000 mL equals 3 L.
- 5:05 p.m.** The rounds take 135 minutes, and the two breaks take 30 minutes, for 165 minutes total. Add 2 hours 45 minutes to 2:20 p.m.

CHALLENGE

13,200 yards; 7 miles 880 yards. Eight miles is 14,080 yards, so 13,200 yards is less than 8 miles.

Accept equivalent time wording, such as 1 hr 35 min. For the money estimate, accept \$8 when \$12.45 is rounded to the nearest dollar, and require the exact change of \$7.55.