

Name _____

Metric Capacity Guided Lesson Explanation

1) When confronted with a word problem like this, we just need to start by getting all the metric measurements in the same unit.

- 1 L = 1,000 mL

Step 1) Create our portion by placing the known volume in it:

$$\frac{1 L}{1.5 L} = \frac{1,000 mL}{x}$$

Solve for "x" by cross multiplying.

$$\frac{1 L}{1.5 L} \times \frac{1,000 mL}{x} : 1,500 = x \quad \text{Therefore: } 1.5 L = 1,500 mL$$

Step 2) Re-read problem with new units. Boy, that's easier on the eyes!

Bryan spilled a 1,500 mL container of milk on his kitchen floor. Bryan has paper towels that can each absorb 100mL of milk. How many paper towels will Bryan need to absorb all of the milk that he spilled?

Step 3) We have to clean 1,500 mL up 100 mL at a time:

$$1,500 mL \div 100 mL = 15 \text{ paper towels}$$

2) These follow the same rhythm. Start with the known relationship between milliliters and liters (1 L = 1,000 mL). Then put the value you have under the same units and complete the proportion to find the converted value.

$$\text{a) } 453 \text{ mL} \quad \therefore \quad \frac{1 L}{x} = \frac{1,000 mL}{453 mL} \quad \therefore \quad 1,000x = 453 \quad \therefore \quad x = 0.453 L$$

$$\text{b) } 2,374 \text{ mL} \quad \therefore \quad \frac{1 L}{x} = \frac{1,000 mL}{2,374 mL} \quad \therefore \quad 1,000x = 2,374 \quad \therefore \quad x = 2.374 L$$

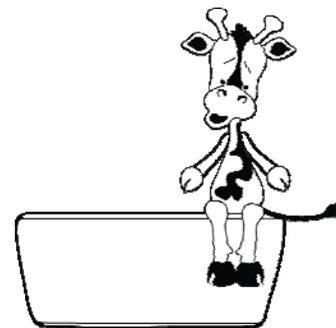


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3) Morgan left us with a tough one.

Step 1) We could either figure out how many milliliters of water are in the tub or how many liters of water the pump drains.

I'm going to figure out how many milliliters of water are in the tub. We know that there are 105 L of water in the tub. We know that there are 1,000 mL in 1 L of liquid volume. We can set up a proportion in this manner to convert the units:



$$\frac{1 L}{105 L} = \frac{1,000 mL}{x} \quad \therefore \quad 105,000 = x \quad \therefore \quad x = 105,000 \text{ mL}$$

Step 2) We know that the pump transfers 750 mL of water each minute. If divide the volume of water by the rate at which pump operates, we will know how many minutes it will take to transfer the water.

$$105,000 \text{ mL} \div 750 \text{ mL} = 140 \text{ minutes.}$$

If we wanted to go crazy, we could even convert that time to hours.

$$140 \text{ minutes} \div 60 \text{ minutes (in 1 hour)} = 2 \text{ hours, } 20 \text{ minutes.}$$

