

Lesson 3.1 Converting Between Measurement Systems

Day 1

Teach objective

Assignment - Guided practice and Independent practice completed as a class

Day 2

Review

Cooperative (elbow buddy) assignment 3-1 practice and problem solving: D

3-1 Practice and problem solving: A/B

Login to Go Math

Go to the Resources Tab

Click on the Student Online Edition (yellow open book)

This will take you to another window to an interactive student edition textbook.

Go to page 85

Answers to “reflect”, Explore activity” and “your turn” questions

EA.

A. 2.54; B. It shows that 11 in is equal to (11×2.54) cm; C. 27.94

1. The parts would represent ounces. You start with ounces and want to convert to grams.

$$2. \frac{6 \text{ qts}}{1} \times \frac{.946 \text{ L}}{1 \text{ qts}} = 5.676 \text{ L}$$

$$3. \frac{14 \text{ ft}}{1} \times \frac{.305 \text{ m}}{1 \text{ ft}} = 4.27 \text{ m}$$

$$4. \frac{255.6 \text{ grams}}{1} \times \frac{1 \text{ ounces}}{28.4 \text{ grams}} = 9 \text{ ounces}$$

$$5. \frac{7 \text{ L}}{1} \times \frac{1 \text{ qts}}{.946 \text{ L}} = 7.4 \text{ quarts}$$

6. Yolanda’s conversion factor is used to convert feet to meters, not square feet to square meters.

$$7. \frac{2 \text{ m}}{1} \times \frac{1 \text{ ft}}{.305 \text{ m}} = 6.56$$

$$\frac{3 \text{ m}}{1} \times \frac{1 \text{ ft}}{.305 \text{ m}} = 9.84$$

$$\text{Area} = \text{Length} \times \text{width} = 6.56 \text{ ft} \times 9.84 \text{ ft} = 64.55 \text{ ft}^2$$

For answers to the guided practice and independent practice, see Coach Gammon.

Additional web sites

<https://www.youtube.com/watch?v=HZ9weUkSdoY>

<https://www.youtube.com/watch?v=7N0IRJLwpPI>

Remember, on the online edition, you can click on the “math on the spot” for a little extra teaching from Prof Burger. If you only have your book, use a QR scanner on the “math on the spot”

Lesson 3-1

Using ratios and proportions to Convert Measurements.

How can I use ratios + proportions to convert measurement?

Use a table of _____ measures to setup a _____, then _____ by it to convert one unit to another

The table shows equivalencies between the customary and metric systems. You can use these equivalencies to convert a measurement in one system to a measurement in the other system.

Length	Weight/Mass	Capacity
1 inch = 2.54 centimeters	1 ounce ≈ 28.4 grams	1 fluid ounce ≈ 29.6 milliliters
1 foot ≈ 0.305 meter	1 pound ≈ 0.454 kilogram	1 quart ≈ 0.946 liter
1 yard ≈ 0.914 meter		1 gallon ≈ 3.79 liters
1 mile ≈ 1.61 kilometers		

While lifting weights, John adds 11.35 kilograms to his bar.
About how many pounds does he add to his bar?

STEP 1 Find the conversion factor.

1 pound ≈ 0.454 kilogram

Write the conversion factor as

a ratio: $\frac{1 \text{ pound}}{0.454 \text{ kilogram}}$



STEP 2 Convert the given measurement.

$$\begin{array}{l} \text{kilograms} \cdot \text{conversion factor} = \text{pounds} \\ 11.35 \text{ kilograms} \cdot \frac{1 \text{ pound}}{0.454 \text{ kilogram}} \approx 25 \text{ pounds} \end{array}$$

John adds about 25 pounds to his bar.

Conversion factor

14 feet ≈ _____ meters

7 liters ≈ _____ quarts

6 quarts ≈ _____ liters

LESSON
3-1

Converting Measurements

Practice and Problem Solving: D

Length	Mass	Capacity
1 inch = 2.54 centimeters 1 foot \approx 0.305 meter 1 yard \approx 0.914 meter 1 mile \approx 1.61 kilometers	1 ounce \approx 28.4 grams 1 pound \approx 0.454 kilogram	1 fluid ounce \approx 29.6 milliliters 1 quart \approx 0.946 liter 1 gallon \approx 3.79 liters

To convert customary measurements to metric measurements, multiply by the conversion factor in the table. Round to the nearest hundredth. The first one is done for you.

- 7 inches \times 2.54 \approx 17.78 centimeters
- 2 pounds \times _____ \approx _____ kilograms
- 6 fluid ounces \times _____ \approx _____ milliliter
- 5 gallons \times _____ \approx _____ liters
- 20 yards \times _____ \approx _____ meters
- 15 ounces \times _____ \approx _____ grams

To convert metric measurements to customary measurements, write a ratio and multiply. Round to the nearest hundredth. The first one is done for you.

- 100 grams \times $\frac{1}{28.4}$ \approx 3.52 ounces
- 20 liters \times _____ \approx _____ quarts
- 4 kilometers \times _____ \approx _____ miles
- 6 kilograms \times _____ \approx _____ pounds
- 50 centimeters \times _____ \approx _____ inches
- 81 milliliters \times _____ \approx _____ fluid ounces

Solve.

- Ashley needs 4.6 yards of chain to hang some flower baskets. The chain is sold by the meter. How many meters does Ashley need?

LESSON
3-1**Converting Measurements***Practice and Problem Solving: A/B*

Length	Mass	Capacity
1 inch = 2.54 centimeters 1 foot \approx 0.305 meter 1 yard \approx 0.914 meter 1 mile \approx 1.61 kilometers	1 ounce \approx 28.4 grams 1 pound \approx 0.454 kilogram	1 fluid ounce \approx 29.6 milliliters 1 quart \approx 0.946 liter 1 gallon \approx 3.79 liters

Use a conversion factor to convert each measurement. Round your answer to the nearest hundredth.

- A driveway is 40 yards long. About how many meters long is it?

- An ice cube is made of 5 fluid ounces of water. About how many milliliters of water does it take to make the ice cube? _____
- Steven bagged 52 pounds of potatoes. About what is that measure in kilograms? _____
- It is 7 kilometers from Kerry's house to the mall. About what is that distance in miles? _____
- A cooler holds 15 liters of water. About how many gallons does it hold?

- Mia's cat weighs 13 pounds, 7 ounces. About what is that weight in kilograms? (Hint: 1 kilogram = 1,000 grams) _____
- D'Quan's grandmother made a quilt for his bed. The quilt is 2.44 meters long and 1.83 meters wide. What is the area of the quilt in square feet? _____
- It is recommended that an adult drink 64 fluid ounces of water every day. Josey has already consumed 700 milliliters of water. How many more liters should he drink today? _____