

Unit Bridge Challenge

Cross from customary units to metric units and back.

GRADE 7 • TEKS 7.4.E

7.4.E "convert between measurement systems, including the use of proportions and the use of unit rates."

NAME _____

DATE _____

CROSS-SYSTEM CONVERSIONS

To convert between customary and metric units, multiply by a conversion factor that cancels the starting unit. You can also write two equivalent ratios as a proportion and solve for the unknown. Check that your final unit is the unit the question asks for.

WORKED EXAMPLE

Convert 13 yd to meters. Use 1 yd = 0.9144 m.

1. Start with 13 yd.
2. Multiply by 0.9144 m/1 yd.
3. $13 \text{ yd} \times 0.9144 \text{ m/1 yd} = 11.8872 \text{ m}$.
4. The yards cancel, leaving meters.

Answer: 11.8872 m

PRACTICE 6 problems

- 1** Convert 3 ft to centimeters. Use 1 ft = 30.48 cm.

ANSWER _____

- 2** Convert 18 lb to kilograms. Use 1 lb approximately = 0.45 kg.

ANSWER _____

- 3** Convert 9 mi to kilometers. Use 1 mi approximately = 1.6 km.

ANSWER _____

- 4** Convert 4 qt to liters. Use 1 qt approximately = 0.946 L.

ANSWER _____

- 5** Convert 11.355 L to gallons. Use 1 gal approximately = 3.785 L.

ANSWER _____

- 6** Convert 113.4 g to ounces. Use 1 oz approximately = 28.35 g.

ANSWER _____

APPLY IT Show your work

- 1** A fitness app records a hiking challenge as 12.8 km. About how many miles is that? Use 1 mi approximately = 1.6 km.

WORK SPACE

ANSWER _____

- 2** The esports club receives a 2.7 kg box of prizes. About how many pounds does the box weigh? Use 1 lb approximately = 0.45 kg.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A robotics team has a cooler with 2.4 gal of water. They fill three bottles, and each bottle holds 0.75 L. How many liters of water remain? Use 1 gal approximately = 3.75 L. Show the conversion and the subtraction.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Convert 3 ft to centimeters. Use 1 ft = 30.48 cm.	91.44 cm
2	Convert 18 lb to kilograms. Use 1 lb approximately = 0.45 kg.	about 8.1 kg
3	Convert 9 mi to kilometers. Use 1 mi approximately = 1.6 km.	about 14.4 km
4	Convert 4 qt to liters. Use 1 qt approximately = 0.946 L.	about 3.784 L
5	Convert 11.355 L to gallons. Use 1 gal approximately = 3.785 L.	about 3 gal
6	Convert 113.4 g to ounces. Use 1 oz approximately = 28.35 g.	about 4 oz

PART 2 • APPLY IT

1. **about 8 mi** Divide 12.8 km by 1.6 km per mile. The kilometers cancel, so the distance is 8 miles.
2. **about 6 lb** Divide 2.7 kg by 0.45 kg per pound. The result is 6 pounds.

CHALLENGE**about 6.75 L**

Accept equivalent proportion setups and correct unit-canceling work. For conversions labeled approximately, accept answers rounded reasonably from the given conversion factor.