First 5 Minutes — Review Question

GRADE 6 • TOPIC 5 • LESSON 5.8 | 5 points • Work independently

Lesson 5.8 • Ratio Reasoning: Convert Customary Units

Find 3.5 × 12.

1. Show each step in your notebook.
2. Explain the operation or rule you used.

Real-Life Connection & Key Concepts

Essential question

How can ratios convert customary units of measure?

Solve & Discuss It!

The 1921 snowfall record was 75.8 inches in 24 hours. If 6.5 feet of snow fell in 24 hours, would the record be broken? Use 12 inches = 1 foot.

What we will learn

Use conversion factors and dimensional analysis for length, capacity and weight; solve multi-step conversions.

Definitions & rules

Conversion factor: a ratio of equivalent measures, equal to 1.

Place the unit to cancel in the denominator.

Length: 12 in = 1 ft, 3 ft = 1 yd, 5,280 ft = 1 mi.
Capacity: 2 c = 1 pt, 2 pt = 1 qt, 4 qt = 1 gal.
Weight: 16 oz = 1 lb.

Example 1 — Customary Unit Conversions

GRADE 6 • TOPIC 5 • LESSON 5.8 | Guided example • Model and explain

Problem

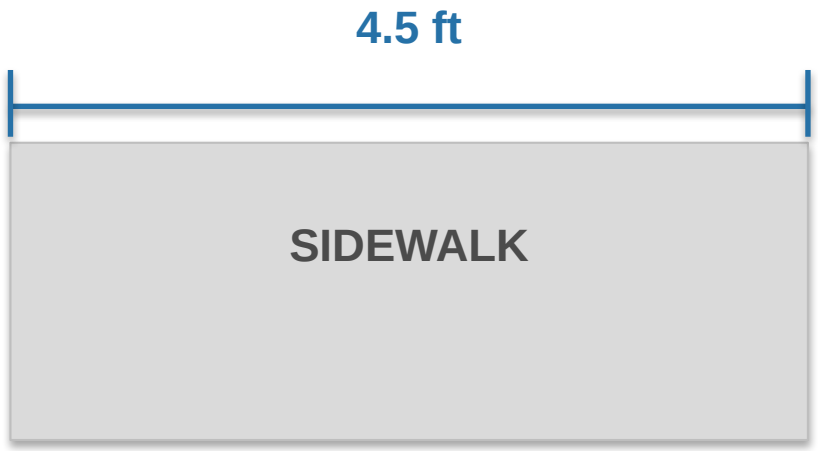
A store’s sidewalk is 4.5 feet wide. The city allows a maximum width of 66 inches. Does the sidewalk meet the requirement?

Worked solution

$4.5 \text{ ft} \times \left(\frac{12 \text{ in.}}{1 \text{ ft}}\right) = 54 \text{ in.}$

$54 \leq 66$. Yes, it meets the regulation.

Choose a customary conversion factor so the original unit cancels.



Maximum: 66 in.

Example 2 — Customary Unit Conversions

Problem

Jonah has 15 gallons of water for a camping trip. How many quarts does he have?

Worked solution

1 gallon = 4 quarts.

$15 \text{ gal} \times \left(\frac{4 \text{ qt}}{1 \text{ gal}}\right) = 60 \text{ qt}.$

Choose a customary conversion factor so the original unit cancels.

Example 3 — Customary Unit Conversions

Problem

An alpine pika weighs 10 ounces. What is its weight in pounds?

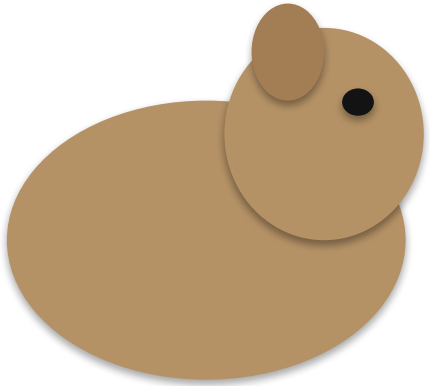
Worked solution

1 lb = 16 oz.

$10 \text{ oz} \times \left(\frac{1 \text{ lb}}{16 \text{ oz}}\right) = \frac{10}{16} \text{ lb}$.

The pika weighs 0.625 lb.

Choose a customary conversion factor so the original unit cancels.



Pika: 10 oz

Individual Work

GRADE 6 • TOPIC 5 • LESSON 5.8 | 10 minutes total • 10 points

Complete all five tasks. Show your reasoning.

8. (p. 319) Convert 5 pt to cups.

9. (p. 319) Convert $2\frac{1}{4}$ gal to qt.

10. (p. 319) Convert 2,640 yd to mi.

Individual Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.8 | 10 minutes total • 10 points

Finish the remaining problems. Check your work.

11. (p. 319) Convert 16 yd to ft.

12. (p. 319) Convert 10 pt to qt.

Individual Work — Answer Key

Choose a customary conversion factor so the original unit cancels.

8. (p. 319)

5 pt × 2 cups/pt = 10 cups.

9. (p. 319)

$2\frac{1}{4}$ gal × 4 qt/gal = 9 qt.

10. (p. 319)

2,640 yd ÷ 1,760 yd/mi = 1.5 mi.

11. (p. 319)

16 yd × 3 ft/yd = 48 ft.

12. (p. 319)

10 pt ÷ 2 pt/qt = 5 qt.

Group Work

GRADE 6 • TOPIC 5 • LESSON 5.8 | 8 minutes total • 10 points

Work together. Each person must contribute a solution.

14. (p. 319) Convert 4,224 ft to miles using a conversion factor.

15. (p. 319) Convert 1,920 fl oz to gallons.

Group Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.8 | 8 minutes total • 10 points

Agree on a solution and be ready to explain it.

16. (p. 319) Stella says 12 ft 8 in. equals 152 in. Vladimir disagrees. Who is correct? Explain.

17. (p. 319) One depth is 5 ft; another is 1 ft 8 in. How many inches deeper is the first?

Group Work — Answer Key

Choose a customary conversion factor so the original unit cancels.

14. (p. 319)

Use $\frac{1 \text{ mi}}{5{,}280 \text{ ft}}$; $4{,}224 \times \frac{1}{5{,}280} = 0.8$ mi.

15. (p. 319)

$1{,}920 \text{ fl oz} \times \left(\frac{1 \text{ gal}}{128 \text{ fl oz}}\right) = 15$ gal.

16. (p. 319)

12 ft × 12 in/ft + 8 in = 152 in. Stella is correct; Vladimir is incorrect.

17. (p. 319)

5 ft = 60 in. 1 ft 8 in = 20 in. 60 − 20 = 40 inches deeper.

Exit Ticket

GRADE 6 • TOPIC 5 • LESSON 5.8 | 2 minutes • Independent check

Before you leave, solve this problem.

Convert 2.25 yd to inches using two factors.

Show your work.

Write the answer with the correct units or graph, if needed.