First 5 Minutes — Review Question

GRADE 6 • TOPIC 5 • LESSON 5.10 | 5 points • Work independently

Lesson 5.10 • Relate Customary and Metric Units

Convert 1.75 L to mL.

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 between customary and metric units?

Explain It!

Gianna says 7 trips with a 1-L pail will cause a 2-gallon bucket to overflow. Use 1 gal ≈ 3.79 L. Is she correct? How many trips are needed for overflow?

What we will learn

Use approximate cross-system conversion factors; use two-step conversions and distinguish exact from approximate results.

Definitions & rules

Approximate factors: 1 in = 2.54 cm (exact); 1 mi ≈ 1.61 km; 1 lb ≈ 0.454 kg; 1 gal ≈ 3.785 L.

Choose the factor to cancel the starting unit.

Round only at the end; state approximate units.

Example 1 — Customary and Metric Units

GRADE 6 • TOPIC 5 • LESSON 5.10 | Guided example • Model and explain

Problem

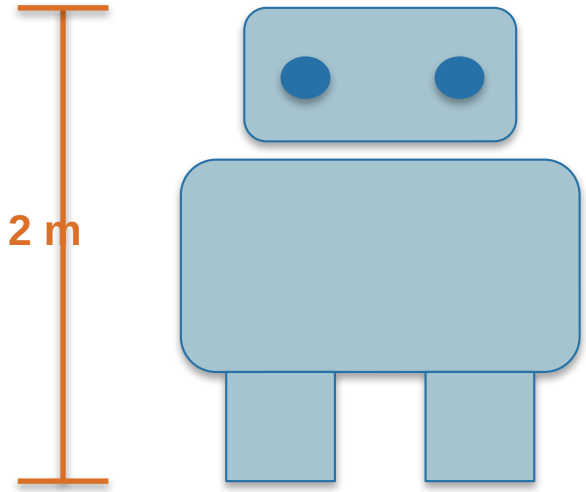
Tyrel’s robot will be 2 meters tall. About how many inches is that? Use 1 m ≈ 39.37 in. Round to the nearest tenth.

Worked solution

$$2 \text{ m} \times \left(\frac{39.37 \text{ in.}}{1 \text{ m}}\right) = 78.74 \text{ in.}$$

To the nearest tenth: 78.7 in.

Use the stated approximate conversion factor; round only the final result.



Robot

Example 2 — Customary and Metric Units

GRADE 6 • TOPIC 5 • LESSON 5.10 | Guided example • Model and explain

Problem

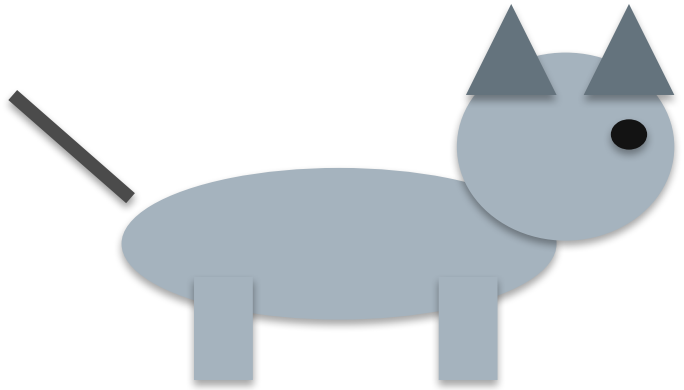
Jenna’s Alaskan husky weighs 21 lb. About how many kilograms is that? Use 1 kg ≈ 2.20 lb. Round to the nearest tenth.

Worked solution

$21 \text{ lb} \times \left(\frac{1 \text{ kg}}{2.20 \text{ lb}}\right) \approx 9.545 \text{ kg}.$

To the nearest tenth: 9.5 kg.

Use the stated approximate conversion factor; round only the final result.



Husky: 21 lb

Example 3 — Customary and Metric Units

Problem

Deva drinks a 0.75 L bottle of water. About how many cups is that? Use 1 L ≈ 1.06 qt and 1 qt = 4 cups.

Worked solution

$0.75 \text{ L} \times \left(\frac{1.06 \text{ qt}}{1 \text{ L}}\right) = 0.795 \text{ qt}.$

$0.795 \text{ qt} \times \left(\frac{4 \text{ cups}}{1 \text{ qt}}\right) = 3.18 \text{ cups}.$

Rounded: about 3.2 cups.

Use the stated approximate conversion factor; round only the final result.

Individual Work

GRADE 6 • TOPIC 5 • LESSON 5.10 | 10 minutes total • 10 points

Complete all five tasks. Show your reasoning.

13. (p. 331) Convert 2 inches to centimeters; round to nearest tenth.

14. (p. 331) Convert 5 km to miles; use 1 mi ≈ 1.61 km. Round to nearest tenth.

18. (p. 331) Convert 10 oz to grams using 1 oz ≈ 28.35 g. Round to the nearest tenth.

Individual Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.10 | 10 minutes total • 10 points

Finish the remaining problems. Check your work.

19. (p. 331) A chef uses 12 lb of butter daily. About how many grams is that? Use 16 oz/lb and 28.35 g/oz.

20. (p. 331) Simone’s room is 86 in. wide and the bed is 76 in. wide. Will a 73-cm-wide chest of drawers fit next to the bed? Explain.

Individual Work — Answer Key

Use the stated approximate conversion factor; round only the final result.

13. (p. 331)

2 in × 2.54 cm/in = 5.08 cm ≈ 5.1 cm.

14. (p. 331)

5 km ÷ 1.61 km/mi ≈ 3.1 mi.

18. (p. 331)

10 oz × 28.35 g/oz = 283.5 g.

19. (p. 331)

12 lb × 16 oz/lb × 28.35 g/oz = 5,443.2 g.

20. (p. 331)

Space = 86 − 76 = 10 in = 25.4 cm.
Chest is 73 cm, so it will not fit.

Group Work

GRADE 6 • TOPIC 5 • LESSON 5.10 | 8 minutes total • 10 points

Work together. Each person must contribute a solution.

21. (p. 332) Convert an elevation of 20,320 ft to meters using 1 m ≈ 3.28 ft.

22. (p. 332) Show how to derive the conversion 1 ft = 30.48 cm.

Group Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.10 | 8 minutes total • 10 points

Agree on a solution and be ready to explain it.

23. (p. 332) A child is 4 ft 7 in. tall. Is the child taller than 138 cm?

26. (p. 332) A space is 15 ft wide. Which will fit: 4.5 m, 3.92 m, 3.5 m? Justify using a conversion.

Group Work — Answer Key

GRADE 6 • TOPIC 5 • LESSON 5.10 | Discuss and justify

Use the stated approximate conversion factor; round only the final result.

21. (p. 332)

20,320 ft ÷ 3.28 ft/m ≈ 6,195 m, using the textbook conversion factor.

22. (p. 332)

1 ft = 12 in. Multiply 12 by 2.54 cm/in = 30.48 cm.

23. (p. 332)

4 ft 7 in = 55 in; 55 × 2.54 = 139.7 cm. Yes, exceeds 138 cm.

26. (p. 332)

15 ft ÷ 3.28 ft/m ≈ 4.57 m. All three widths (4.5, 3.92, 3.5 m) are below 4.57 m, so all fit.

Exit Ticket

GRADE 6 • TOPIC 5 • LESSON 5.10 | 2 minutes • Independent check

Before you leave, solve this problem.

A height of 5 ft 4 in is how many centimeters?

Show your work.

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