Lesson 3-7 · Session 1

Customary vs. Metric Conversions

Name _____ Date _____ Period _____

Maryland Standard 6.AT.3c · Learning target — I can convert a measurement between the customary and metric systems using a given rate.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- 1 inch = 2.54 cm exactly; 1 mile ≈ 1.6 km and 1 pound ≈ 0.45 kg are rounded factors.
- Use the factor supplied. Write ≈ when the factor or final answer is rounded.
- Watch out — cross-system answers are estimates; do not report them as exact.
- Check it — compare your answer with the unit sizes: a meter is longer than a foot, so the number of feet must be larger.

WORKED EXAMPLE

Converting Across the Two Systems A room is 5 meters wide. How many feet is that? (1 meter ≈ 3.28 feet)

Step 1 Write the conversion factor. 1 m ≈ 3.28 ft

Step 2 Ask which unit is bigger. A meter is bigger than a foot.

Step 3 A bigger unit becomes more of the smaller unit, so multiply. 5 × 3.28 = 16.4

Step 4 Check reasonableness: 16.4 ft is more than 5 — correct direction.

Answer 5 meters ≈ 16.4 feet.

Practice

1. About how many centimeters are in 10 inches? (Use 1 in = 2.54 cm) _____

Answer _____

SHOW YOUR THINKING

2. About how many kilometers are in 5 miles? (Use 1 mi ≈ 1.6 km) _____

Answer _____

SHOW YOUR THINKING

3. A backpack weighs 9 pounds. About how many kilograms is that? (Use 1 lb ≈ 0.45 kg) _____

Answer _____

SHOW YOUR THINKING

4. Convert each measure. Use the factor given in each part.

a. 5 in = _____ cm (1 in = 2.54 cm)
b. 10 mi ≈ _____ km (1 mi ≈ 1.6 km)
c. 20 lb ≈ _____ kg (1 lb ≈ 0.45 kg)
d. 2 m ≈ _____ ft (1 m ≈ 3.28 ft)
e. 4 kg ≈ _____ lb (1 kg ≈ 2.2 lbs)

Answer _____

SHOW YOUR THINKING

5. Soccer Trip Distance. A team bus drives 240 kilometers to a tournament. About how many miles is that? (1 mi ≈ 1.6 km)

Answer _____

SHOW YOUR THINKING

6. A recipe needs 500 grams of flour. About how many pounds is that? (1 lb ≈ 454 g) Round to the nearest tenth.

Answer _____

SHOW YOUR THINKING

7. Ceiling Height. A classroom ceiling is 11 feet high. About how many meters is that? (1 ft ≈ 0.3 m) Then tell whether your answer should be more or less than 11, and why.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

8. Sofia converted 8 kilometers to miles by multiplying: 8 × 1.6 = 12.8 miles. Explain why her answer is too big, then find the correct number of miles. (1 mi ≈ 1.6 km) Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Convert 8 meters to feet. (1 m is about 3.28 ft)

Answer _____ feet

SHOW YOUR THINKING

10. Convert 22 pounds to kilograms. (1 kg is about 2.2 lb)

Answer _____ kilograms

SHOW YOUR THINKING

11. Compare. A fence is 10 meters long and a wall is 30 feet long. Which is longer? (1 m is about 3.28 ft)

Answer _____ the longer one and by how much

SHOW YOUR THINKING

12. Find the Mistake. To change 6 meters into feet, Luis divided by 3.28 and got about 1.83. Explain the mistake.

Answer _____ the mistake and the answer

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 3-6 Session 2. Convert 2800 grams to kilograms.

Answer _____

SHOW YOUR THINKING

14. From Lesson 3-5 Session 2. Name a good benchmark for comparing 3-packs and 4-packs.

Answer _____

SHOW YOUR THINKING

15. From Lesson 3-1 Session 2. Share 42 in the ratio 2 : 5. Find both shares.

Answer _____

SHOW YOUR THINKING

Test practice

16. 3 meters is about how many feet?

□ A. 0.91	□ B. 9.84
□ C. 3.28	□ D. 6.28

17. 11 pounds is about how many kilograms?

□ A. 11	□ B. 24.2
□ C. 5	□ D. 2.2

18. Answers converted across systems should be labeled —

□ A. at least	□ B. exactly
□ C. equal to	□ D. about

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Use the supplied factors. Keep exact and approximate relationships distinct. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check that corresponding quantities stay in order. Label units and explain what your answer means.