GRADE 7 ACCELERATED · UNIT 5

Unit 5 Review

Multi-Step Proportional Relationships

Name_____
Date_____
Period_____

Show your work. Circle your final answer.

HOW TO USE THIS. This review covers every learning target from the unit — more than the assessment does. Work it one section at a time. If you miss two or more in a section, that section is where to spend your study time. The reference sheet has everything you need for each section.

Scale Drawings

Lesson 5.01 · 5 questions

1. A 5 cm side of a figure is 8 cm in its scale copy. Find the scale factor.

2. A 16 cm side of a figure is 4 cm in its scale copy. Find the scale factor.

3. A scale copy is made at $k = 1.5$. A side of the original is 6 cm. Find the matching side of the copy.

4. A drawing has a 65° angle. Its scale copy is made at $k = 2$. What is the matching angle in the copy?

- ○ A. 32.5°
- ○ B. 67°
- ○ C. 130°
- ○ D. 65°

5. A map is drawn at $1\,\text{cm} : 30\,\text{km}$. Two towns are 4.5 cm apart on it. How far apart are they?

Scale Factor: Perimeter and Area

Lessons 5.02–5.03 · 6 questions

6. A figure with perimeter 16 cm is scaled by $k = 2.5$. Find the copy's perimeter.

7. A figure with area $9\,\text{cm}^2$ is scaled by $k = 2.5$. Find the copy's area.

8. A 4 cm by 6 cm rectangle is scaled by $k = \frac{1}{2}$.

a. Find the copy's perimeter.

b. Find the copy's area.

9. A figure has area $10\,\text{cm}^2$ and its scale copy has area $160\,\text{cm}^2$. Find k.

10. A figure's perimeter is 12 cm and its copy's perimeter is 36 cm. What is the area ratio, copy to original?

11. Sam says tripling every side of a rectangle triples its area. Explain why not, with a counterexample.

Real-World Scale Drawings

Lesson 5.04 · 4 questions

12. A plan is drawn at $\frac{1}{2}\,\text{in} : 1\,\text{ft}$. A wall is 7.5 in long on it. Find the real length.

13. A plan is drawn at $1\,\text{in} : 6\,\text{ft}$. A real wall is 21 ft long. Find its length on the plan.

14. A model boat is built at $1 : 25$ and is 32 cm long. Find the real boat's length in meters.

15. Every part below is about one floor plan drawn at $\frac{1}{4}\,\text{in} : 1\,\text{ft}$, on which a room is 3 in by 4 in. $1\,\text{ft} = 0.305\,\text{m}$.

a. Find the real length of the wall drawn 3 in long.

b. Find the room's real area.

c. Write the scale factor from the drawing to the room as a single number.

d. Find the room's real perimeter in meters.

Converting Length Across Systems; Currency

Lessons 5.06–5.07 · 6 questions

16. $1\,\text{in} = 2.54\,\text{cm}$. How many centimeters is 14 in?

17. $1\,\text{cm} = 0.39\,\text{in}$. How many inches is 120 cm?

18. $1\,\text{km} = 0.62\,\text{mi}$. How many miles is 30 km?

19. $1\,\text{yd} = 3\,\text{ft}$, $1\,\text{ft} = 12\,\text{in}$, $1\,\text{in} = 2.54\,\text{cm}$. How many centimeters is 6 yd? Estimate first.

20. Rate on Nov 3: $1\,\text{US dollar} = 0.92\,\text{euros}$.

a. How many euros is $150?

b. How many US dollars is 69 euros?

21. $1\,\text{in} = 2.54\,\text{cm}$; $1\,\text{cm} = 0.39\,\text{in}$. Lee converts 40 cm to inches by multiplying by 2.54 and gets 101.6 in. Name the error and fix it.

Converting Mass, Area and Volume

Lessons 5.08–5.09 · 5 questions

22. $1\,\text{lb} = 0.454\,\text{kg}$. How many kilograms is 80 lb?

23. $1\,\text{L} = 0.264\,\text{gal}$. How many gallons is 40 L?

24. $1\text{ ft} = 0.305\text{ m}$. How many square meters is 8 ft^2 ? (Round to two places.)

25. $1\text{ c} = 8\text{ fl oz}$ and $1\text{ c} = 0.24\text{ L}$. How many liters is 48 fl oz?

26. $1\text{ m} = 3.28\text{ ft}$. A desk is 1.5 m^2 in area. Which is closest to its area in square feet?

- ○ A. 4.9 ft^2
- ○ B. 9.8 ft^2
- ○ C. 16.1 ft^2
- ○ D. 10.8 ft^2

Multi-Step Proportion Problems

Lessons 5.10–5.11 · 4 questions

27. A car gets 29 miles per gallon and its tank holds 12 gal.

a. How far does it go on a full tank?

b. It starts an 800-mi trip with a full tank. How many tanks of gas does the trip take?

28. A recipe for 3 servings uses $1\frac{1}{4}$ cups of rice.

a. How much rice for 12 servings?

b. With 10 cups on hand, how many servings can be made?

29. $1\,\text{km} = 0.62\,\text{mi}$. A train does 110 km/h; a bus does 65 mi/h. Which is faster? Show both speeds in one unit.

30. Paint is mixed $1:2:5$. A batch uses 10 gal of the third color. How many gallons is the whole batch?