LESSON MAKER PRO

Scale It Up

Use scale relationships to find real and drawing lengths.

GRADE 7 · 7.MG.2.h

7.MG.2.h "Apply proportional reasoning to solve problems in context including scale drawings. Scale factors shall have denominators no greater than 12 and decimals no less than tenths."

NAME _____ DATE _____

USE THE SCALE

A scale compares a length in a drawing or model with the matching actual length. Multiply to move from a drawing to an actual length when each drawing unit represents more actual units. Divide or use the reciprocal scale factor to move from an actual length to a drawing length.

WORKED EXAMPLE

A museum map uses the scale 1 cm = 6 m. A path measures 4.5 cm on the map. How long is the actual path?

1. Each centimeter stands for 6 m.
2. Multiply: 4.5 * 6 = 27.
3. The actual path is 27 m.

Answer: 27 m

PRACTICE 6 problems

1 A trail drawing uses the scale 2 cm = 10 m. A trail measures 3 cm on the drawing. How long is the actual trail?

ANSWER _____

2 A map uses the scale 4 cm = 16 km. A real route is 32 km long. How long is the route on the map?

ANSWER _____

3 A sign drawing has a drawing-to-actual scale factor of 3/7. The actual sign is 35 cm long. How long is the drawing?

ANSWER _____

4 A mural drawing has a drawing-to-actual scale factor of 2/5. The actual mural is 35 cm wide. How wide is the drawing?

ANSWER _____

5 A skateboard model has a drawing-to-actual scale factor of 3/12. The real skateboard is 48 cm long. How long is the model?

ANSWER _____

6 A playground model uses the scale 5 cm = 20 m. A field measures 9 cm on the model. How long is the actual field?

ANSWER _____

APPLY IT Show your work

1 The student council makes a floor plan for a gaming corner. The scale is 3 cm = 2 m. A wall measures 7.5 cm on the floor plan. How long will the actual wall be?

WORK SPACE

ANSWER _____

2 For a theater club project, a miniature stage set has a drawing-to-actual scale factor of 3/10. A real stage platform is 70 cm long. How long should the platform be in the miniature set?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A game designer makes a rectangular tabletop arena drawing. The drawing-to-actual scale factor is 3/8. The drawing is 7.5 cm long and 3 cm wide. What is the actual perimeter in centimeters? Explain how you used the scale factor.

_____

_____

ANSWER KEY

Scale It Up

GRADE 7 · 7.MG.2.h

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A trail drawing uses the scale 2 cm = 10 m. A trail measures 3 cm on the drawing. How long is the actual trail?	**15 m**
2	A map uses the scale 4 cm = 16 km. A real route is 32 km long. How long is the route on the map?	**8 cm**
3	A sign drawing has a drawing-to-actual scale factor of 3/7. The actual sign is 35 cm long. How long is the drawing?	**15 cm**
4	A mural drawing has a drawing-to-actual scale factor of 2/5. The actual mural is 35 cm wide. How wide is the drawing?	**14 cm**
5	A skateboard model has a drawing-to-actual scale factor of 3/12. The real skateboard is 48 cm long. How long is the model?	**12 cm**
6	A playground model uses the scale 5 cm = 20 m. A field measures 9 cm on the model. How long is the actual field?	**36 m**

PART 2 · APPLY IT

1. **5 m** Since 3 cm represents 2 m, divide 7.5 by 3 to get 2.5 scale groups. Then multiply 2.5 by 2 m to get 5 m.
2. **21 cm** Multiply the actual length by the drawing-to-actual scale factor: 70 * 3/10 = 21. The miniature platform should be 21 cm long.

CHALLENGE

56 cm. The actual lengths are found by multiplying by 8/3: 7.5 * 8/3 = 20 cm and 3 * 8/3 = 8 cm. The perimeter is 2 * (20 + 8) = 56 cm.

Accept equivalent fraction or decimal work when it leads to the correct labeled length. For drawing-to-actual scale factors, students may correctly use the reciprocal to find actual measurements.