LESSON MAKER PRO

Scale It Up

Use scale factors to connect drawings and real measurements.

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 _____

SCALE FACTOR MOVES

A scale factor compares a drawing length to an actual length. To find a drawing length, multiply the actual length by the scale factor. To find an actual length, divide the drawing length by the scale factor.

WORKED EXAMPLE

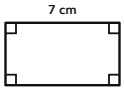
A collectible figure is 5/11 the height of the character it represents. The character is 22 cm tall. How tall is the figure?

1. Write drawing height = 5/11 × 22.
2. Divide 22 by 11 to get 2.
3. Multiply 2 by 5 to get 10 cm.

Answer: 10 cm

PRACTICE 6 problems

1 This rectangle is a scale drawing of a banner. The scale factor from the actual banner to the drawing is 1/4. What is the actual width of the banner?



ANSWER _____

2 A model uses a scale factor of 0.3 from actual length to drawing length. A path measures 7.2 cm on the model. What is the actual length of the path?

ANSWER _____

3 A photo is enlarged with a scale factor of 1.4. The original photo is 15 cm wide. What is the width of the enlarged photo?

ANSWER _____

4 On a map, 3 cm represents 8 km. A hiking route measures 9 cm on the map. What is the actual length of the route?

ANSWER _____

5 A miniature stage has a scale factor of 7/12 from actual height to model height. The actual stage is 48 m high. How high is the model?

ANSWER _____

6 A blueprint scale says 4 cm represents 9 m. A wall is 36 m long. How long should the wall be on the blueprint?

ANSWER _____

APPLY IT Show your work

1 A gaming club is planning an esports event space. Its rectangular floor plan uses a scale of 1 cm = 6 m. The floor plan is 7.5 cm long and 4 cm wide. What will be the actual perimeter of the event space?

WORK SPACE

ANSWER _____

2 A student is planning a weekend bike route. Use the map distances in the table. The scale is 1 cm = 8 km. What is the actual total distance of both trail segments?

BIKE ROUTE MAP

Trail segment	Length on map
River Trail	3.5 cm
Forest Trail	4.5 cm

ANSWER _____

CHALLENGE One step up

Two floor plans may use the same scale factor. Plan A shows 16 cm for an actual length of 36 cm. Plan B shows 20 cm for an actual length of 45 cm. Do the plans use the same scale factor? Explain by finding each scale factor. Then find the drawing length for an actual length of 27 cm using that scale.

WORK SPACE AND ANSWER

ANSWER KEY

Scale It Up

GRADE 7 · 7.MG.2.h

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	This rectangle is a scale drawing of a banner. The scale factor from the actual banner to the drawing is 1/4. What is the actual width of the banner?	**28 cm**
2	A model uses a scale factor of 0.3 from actual length to drawing length. A path measures 7.2 cm on the model. What is the actual length of the path?	**24 cm**
3	A photo is enlarged with a scale factor of 1.4. The original photo is 15 cm wide. What is the width of the enlarged photo?	**21 cm**
4	On a map, 3 cm represents 8 km. A hiking route measures 9 cm on the map. What is the actual length of the route?	**24 km**
5	A miniature stage has a scale factor of 7/12 from actual height to model height. The actual stage is 48 m high. How high is the model?	**28 m**
6	A blueprint scale says 4 cm represents 9 m. A wall is 36 m long. How long should the wall be on the blueprint?	**16 cm**

PART 2 · APPLY IT

1. **138 m** The actual length is 45 m and the actual width is 24 m. Find the perimeter with 2 × (45 + 24) = 138 m.
2. **64 km** Add the map lengths to get 8 cm. Multiply 8 cm by 8 km per cm to get 64 km.

CHALLENGE

Yes. Both scale factors are 4/9 because 16/36 = 4/9 and 20/45 = 4/9. The drawing length for 27 cm is 12 cm.

Accept equivalent fraction forms for scale factors, such as 16/36 simplified to 4/9. Require units on measurement answers.