Practice Test 4

Chapter 4 Practice Test

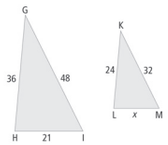
For #1 to #4, choose the best answer.

1. What is the value of x if $\frac{1}{x} = \frac{8}{32}$?

A 2 **B** 3 **C** 4 **D** 7

2. $\triangle GHI \sim \triangle KLM$. Determine the missing length.

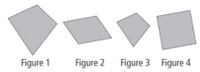
A 4
B 8
C 10
D 14



3. On a scale diagram, what does 1 in the scale 1 : 5 represent?

A how many times larger the object is
B one unit of the actual size
C one unit of the diagram size
D the total size of the scale diagram

4. Which pair of quadrilaterals appears to be similar?



A Figure 1 and Figure 2
B Figure 1 and Figure 3
C Figure 1 and Figure 4
D Figure 2 and Figure 3

Complete the statements in #5 and #6.

5. An umbrella is 75 cm in length. Using a scale of 1 : 5, the length of an image of the umbrella is ■.

6. The constant amount by which the dimensions of an object are enlarged or reduced is called the ■ ■.

Short Answer

7. Draw a reduction that is half the size of this figure.

8. If the actual pencil has a length of 18.8 cm, determine the scale factor used to create this image. Give your answer to the nearest tenth.

9. The flagpole in front of city hall is 5.5 m tall. If the height of a model of the flagpole is 6.5 cm, what is the scale factor of the model? Express your answer to the nearest hundredth.

10. An actual western spruce budworm larva can grow to 32 mm in length. Using a scale of 1 : 1.43, what would be the length of an image of the larva? Express your answer to the nearest tenth.

Did You Know?

Western spruce budworm larvae feed mostly on the foliage, flowers, and developing cones of fir and spruce trees. These insects cause serious damage to Douglas firs in the interior of British Columbia.

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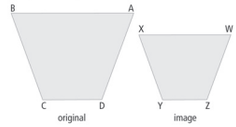
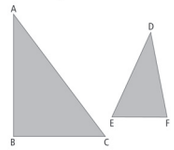
11. Is the image proportional to the original shape? Explain how you know. If it is proportional, state the scale factor.



Extended Response

12. At noon one day, a 20-m vertical pole casts a shadow that is 28 m long. A nearby building casts a shadow 35 m in length. Sketch the situation. How tall is the building?

13. Determine if $\triangle ABC$ and $\triangle DEF$ are similar. Show all your work.

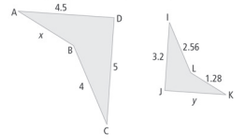


14. Bees made the hexagonal-shaped cells in the honeycomb shown here. Draw a hexagon similar to one of these cells. Explain why the two hexagons are similar.

Did You Know?

A honeycomb is a mass of hexagonal wax cells that contain bee larvae, honey, and pollen. The hexagonal arrangement is an efficient way to pack as many cells as possible in a limited space.

15. These polygons are similar. Determine the missing lengths x and y. Show your work.



Math Link: Wrap It Up!

Finalize your design project.

a) Decide on the layout. Include the following elements:
- an enlarged or reduced image of your design
- a similar triangle for the logo
- a similar polygon that features the title of your design project
- a scale diagram of your design

b) Make a presentation that includes:
- your design and the scale you used
- a description or actual sample of the completed design project
- what you learned about scale diagrams and similarity

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***MathLinks 9*, pages 162–163**

Suggested Timing

40–50 minutes

Materials

- ruler
- protractor
- grid paper

Blackline Masters

Master 8 Centimetre Grid Paper
Master 9 0.5 Centimetre Grid Paper
BLM 4–13 Chapter 4 Test

Planning Notes

Make copies of **Master 8 Centimetre Grid Paper** and **Master 9 0.5 Centimetre Grid Paper** available for #7. Have students start the practice test by writing the question numbers in their notebooks. Have them indicate which questions they need a little help with, a lot of help with, or no help with. Have students first complete the questions they know they can do. Then, have students complete the questions they know something about. Finally, have students do their best on the questions that they still need coaching with.

This practice test can be assigned as an in-class or take-home assignment. Provide students with the number of questions they can comfortably do in one class. These are the minimum questions that will meet the related curriculum outcomes: #2–5, 7, 8, 11, and 13–15.

Study Guide

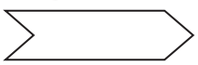
Question(s)	Section(s)	Refer to	The student can …
#1	4.2	Examples 1, 2	✓ determine the scale factor for scale diagrams
#2, 12	4.3	Example 2	✓ solve problems using the properties of similar triangles
#3, 5, 10	4.2	Example 1	✓ identify scale diagrams and interpret the scale factor
#4	4.4	Example 1	✓ identify similar polygons and explain why they are similar
#6	4.1	Example 1	✓ identify enlargements and reductions and interpret the scale factor
#7	4.1	Example 2	✓ draw enlargements and reductions to scale
#8, 9	4.2	Example 2	✓ determine the scale factor for scale diagrams
#11	4.2	Communicate the Ideas #3	✓ determine if a given diagram is proportional to the original shape
#13	4.3	Example 1	✓ determine similar triangles
#14	4.4	Communicate the Ideas #1	✓ draw similar polygons
#15	4.4	Example 2	✓ solve problems using the properties of similar polygons

Answers

Chapter 4 Practice Test

1. C **2.** D **3.** C **4.** B **5.** 15 cm **6.** scale factor

7. Look for a reduction using a scale factor of 0.5.
Example:



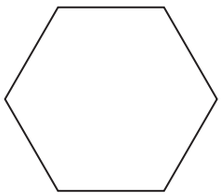
8. 0.2 **9.** 0.01 **10.** 22.4 mm

11. Yes, they are similar. All corresponding angles are equal in measure and the corresponding sides are proportional using a scale factor of 0.77.

12. 25 m

13. The triangles are not similar. The corresponding sides are not proportional in length.

14. Example:



15. $x = 2$; $y = 2.88$

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 4 Self-Assessment Have students review their earlier responses in the What I Need to Work On section of their Foldable.	• Have students use their responses on the practice test and work they completed earlier in the chapter to identify areas in which they may need to reinforce their understanding of skills or concepts. Before the chapter test, coach them in the areas in which they are having difficulties.
Assessment *of* Learning	
Chapter 4 Test After students complete the practice test, you may wish to use **BLM 4–13 Chapter 4 Test** as a summative assessment.	• Consider allowing students to use their Foldable. • Since the Wrap It Up! and Challenges provide additional reinforcement of chapter content, you may wish to have students complete these activities before doing the Chapter 4 Practice Test and **BLM 4-13 Chapter 4 Test**. • Consider using the Challenges to assess the knowledge and skills of students who have difficulty with tests.