Chapter 4 Practice Test

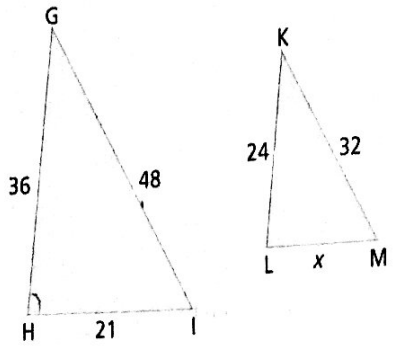
For #1 to #4, choose the best answer.

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.

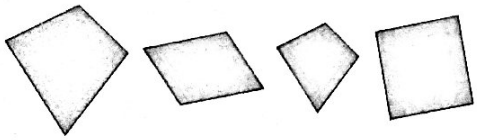
A 4
B 8
C 10
D 14



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

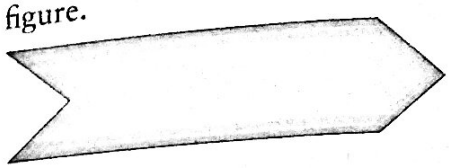
Complete the statements in #5 and #6.

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

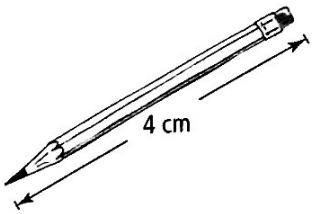
6. The constant amount by which the dimensions of an object are enlarged or reduced is called the ■ ■.

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.



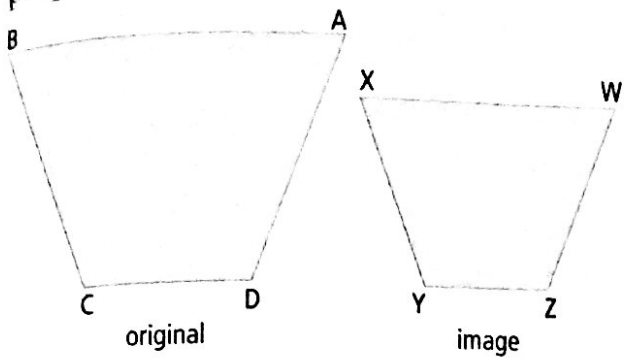
9. The flagpole in front of city hall is 5.5 m tall. If the height of a model of the flagpole is 6.5 cm, what is the scale factor of the model? Express your answer to the nearest hundredth.

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.

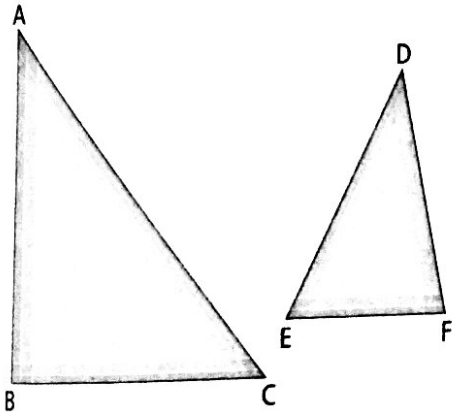
11. Is the image proportional to the original shape? Explain how you know. If it is proportional, state the scale factor.



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.

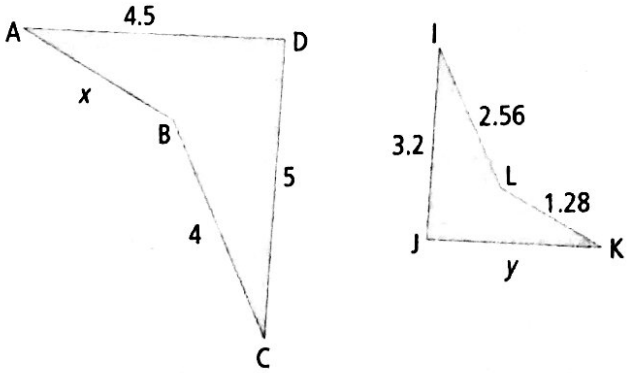


14. Bees made the hexagonal-shaped cells in the honeycomb shown here. Draw a hexagon similar to one of these cells. Explain why the two hexagons are similar.

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