**P11 - Review Package 6**

**Multiple Choice**
*Identify the choice that best completes the statement or answers the question.*

_____ 1. Congruent sides between two objects tell us:

   a.  That the two objects are similar.
   b.  That the two objects have congruent angles.
   c.  That the two objects have the same area.
   d.  None of the above.

_____ 2. A school zone traffic sign has five sides. What must you know about the sign in order to produce more traffic signs of a similar shape?

   a.  The sign's number of sides.         c.  The sign's height and width.
   b.  The sign's size and weight.          d.  The sign's side lengths and angles.

_____ 3. A doorway of width 3.25 ft and height 7.25 ft is similar to another doorway of width $x$ and height 9.06 ft. What is the measure of $x$?

   a.  4.06 ft                              c.  3.31 ft
   b.  20.21 ft                             d.  2.60 ft

_____ 4. A table of width 5.25 ft and length 7.25 ft is similar to another table of length 9.06 m and width $x$. What is the measure of $x$?

   a.  5.81 m                               c.  6.56 m
   b.  4.20 m                               d.  10.51 m

_____ 5. A greeting card of height 16 cm and width 12 cm is similar to a get-well card of height 24 cm and width $x$. What is the measure of $x$?

   a.  16.6 cm                              c.  18.0 cm
   b.  16.9 cm                              d.  18.9 cm

_____ 6. What is necessary to make the two shapes below similar?

Shape 2

Shape 1
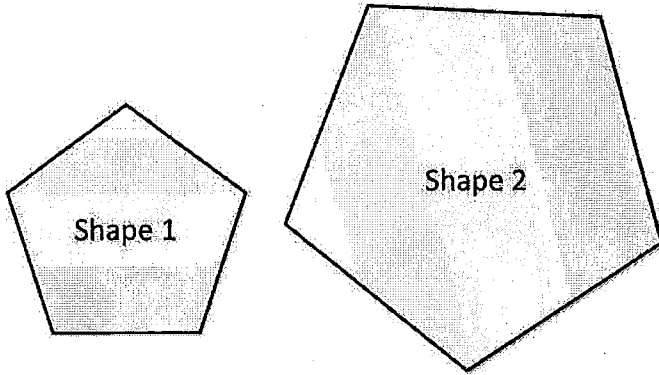
    a. Their corresponding sides must be proportional and their corresponding areas also must be proportional.
    b. Their corresponding angles must be the same and their corresponding sides must be proportional.
    c. Their corresponding angles must be the same and their corresponding areas must be proportional.
    d. Their corresponding angles must be supplementary and their corresponding sides must be proportional.

_____ 7. A rectangular exercise trampoline is 2.5 m wide and 6 ft long. A large rectangular recreation trampoline is much bigger, but a similar shape. If it is 10 m wide, how long is it?

    a. 24 ft                     c. 3.5 ft
    b. 25 ft                     d. 12 ft

_____ 8. Any two regular pentagons can be considered similar shapes.

    a. Always.
    b. Sometimes. They must have the same side lengths.
    c. Sometimes. It depends on the orientation of the pentagons.
    d. Never.

_____ 9. If the scale on a map of the world is 750 km:1 cm, what distance would be represented by 12 cm on the map?

    a. 9000 km                c. 9050 km
    b. 9030 km                d. 8970 km

_____ 10. A stop sign has eight sides. What must you know about the sign in order to produce more stop signs of a similar shape?

    a. The stop sign's height and width.          c. The stop sign's size and weight.
    b. The stop sign's side lengths and angles.    d. The stop sign's number of sides.

_____ 11. A carpet is 6 m wide and 8 m long. It is similar to another carpet that is 12 m wide. What is its length?

    a.  21 m                        c.  16 m
    b.  18.25 m                  d.  13 m

_____ 12. A pen flashlight has a length of 7 cm and a width of 1 cm. A searchlight has a length of 1.19 m and a width of 17 cm. The dimensions of the searchlight are how many times bigger than the flashlight?

    a.  20 times                 c.  17 times
    b.  19 times                 d.  13 times

_____ 13. A notebook has a length of 11 in and a width of 9 in. A pocket notebook is similar in shape and has a length of 7.3 in. What is the width of the pocket notebook?

    a.  5.6 in                   c.  6.2 in
    b.  6.3 in                   d.  6.0 in

_____ 14. A four-sided polygon has side lengths of 47 cm, 52 cm, 32 cm, and 69 cm and interior angles of 23°, 69°, 81°, and 187°. If a larger polygon with a similar shape is created by a scale factor of 1.7, what will its angles be?

    a.  39°, 117°, 138°, 318°         c.  23°, 69°, 81°, 187°
    b.  39°, 69°, 138°, 187°          d.  23°, 117°, 81°, 318°

_____ 15. A polygon has side lengths of 40 mm, 45 mm, and 25 mm and interior angles of 20°, 60°, and 100°. If a smaller polygon with a similar shape is created by a scale factor of 0.4, what will its side lengths be?

    a.  8 mm, 24 mm, 40 mm        c.  16.0 mm, 100.0 mm, 24.8 mm
    b.  16.0 mm, 18.0 mm, 10.0 mm    d.  100.0 mm, 112.5 mm, 155.0 mm

_____ 16. A square of unknown side lengths is enlarged to a new square of similar shape. If the area of the new square is 20 times larger than the original, what was the scale factor?

    a.  4.47                   c.  20.00
    b.  10.00                 d.  6.77

_____ 17. Two triangles are considered to be similar if _____.

    a.  at least two ratios of side lengths are the same.
    b.  at least one ratio of side lengths is the same.
    c.  at least two corresponding angles are the same.
    d.  at least one corresponding angle is the same.

_____ 18. A triangle has a leg of 14 cm. The corresponding side of a similar triangle is 182 cm. How many times larger is the similar triangle?

    a.  11                   c.  12
    b.  14                   d.  13

_____ 19. A right triangle has a base of 46 cm. A similar triangle has a base of 874 cm. How many times larger is the similar triangle?

a. 19
b. 17

c. 18
d. 20

_____ 20. A right triangle and an isosceles triangle can be similar in shape.

a. Always.
b. Sometimes. Their angles must add to 180°.
c. Sometimes. Only if the angles are 45°, 45°, and 90°.
d. Never.

## Short Answer

1. The three interior angles of a triangle are 45°, 40°, and 95°. A second triangle is similar to this first one. What are its interior angles?

2. François builds two wooden toy chests. One is a rectangular prism with a length of 1 m, a width of 40 cm, and a height of 45 cm. The other is a rectangular prism with a length of 60 cm, a width of 24 cm, and a height of 27 cm. Are the toy chests similar? Show your work.

3. A triangle has two interior angles of 44° and 85°. A second triangle has two interior angles of 44° and 53°. Are these two triangles similar? Explain.

4. A triangle has side lengths of 6 cm, 9 cm, and 11 cm. The shortest side of a similar triangle is 21 cm. What are the lengths of its other two sides?
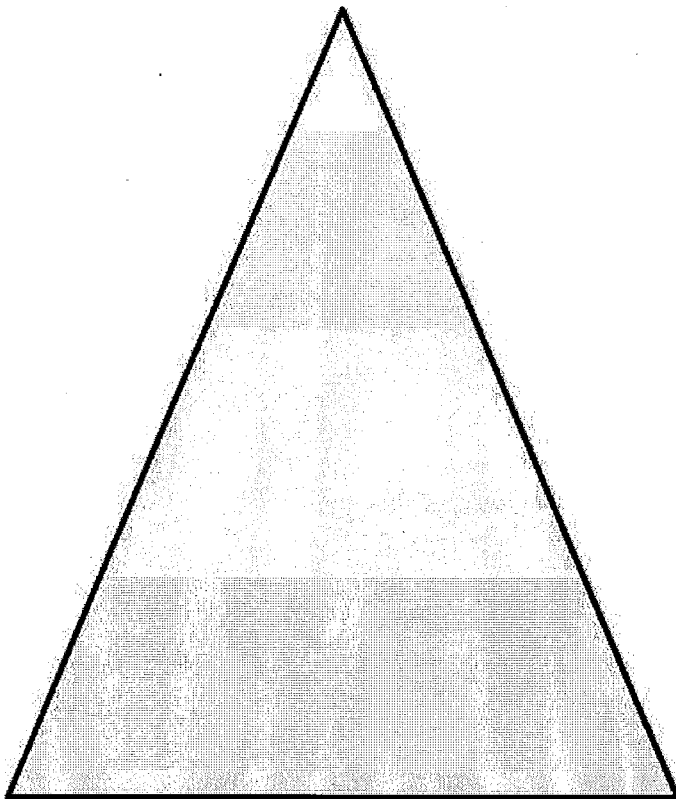
5. Is △ABC similar to △XYZ? Explain your answer.
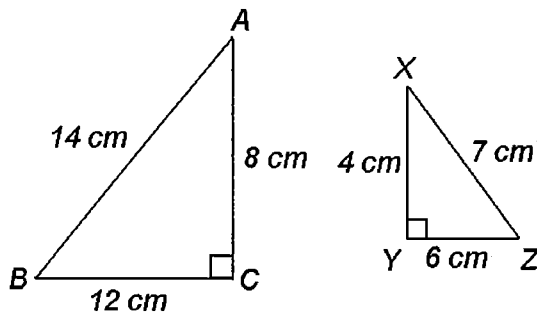
**Problem**

1. What is the value of ∠I if the two shapes are similar? Explain.
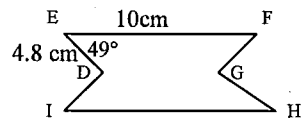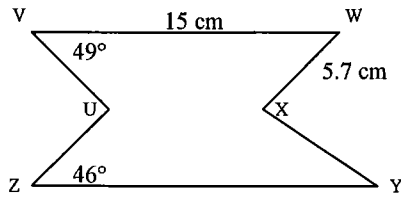


2. Create a figure that is half as big as the diagram below using the ratio method.

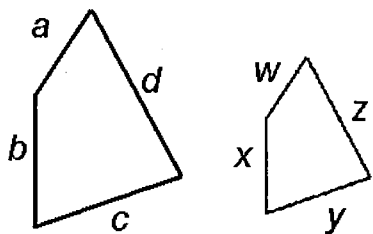3. The diagrams below have the following dimensions:

$a = 142.8$     $w = 28$
$b = 137.7$     $x = 27$
$c = 71.4$      $y = 14$
$d = 153$       $z = 30$

If the larger figure was created as an enlargement of the smaller figure, what scale factor was used?

4. In the picture below, a man observes his shadow on the ground. The casting of his shadow creates a similar triangle to that of the nearby building. If $a$ is 2.6 m and $b$ is 15.6 m, how tall is the man if the building is 11.4 m tall?

$b$ = length of building's shadow
$a$ = length of man's shadow

$y$ = building's height
$x$ = man's height

49°
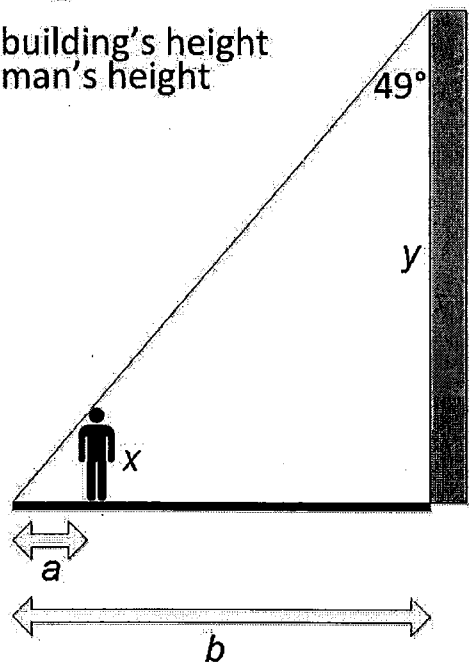
5. Find the missing values in the following triangles, assuming they are similar.

8 m

A

23°

4.8 m

117°

b

6 m

40°

B

a

C

4 m