Grade 9 Unit Assessment - Scale Factors and Similarity

Outcome SS4	Draw and interpret scale diagrams of 2-D shapes
Outcome SS3	Demonstrate an understanding of similarity of polygons

Multiple Choice (5 marks)
• **Circle the choice that best answers the question.**

1) A penny has a diameter of 19 mm. You used a scale factor of 3 to create a scale drawing of the penny. Which of the following statements about your drawing are true?

   a) You drew an enlargement. The drawing has a diameter of 57 mm.
   b) You drew an enlargement. The drawing has a diameter of about 6.3 mm.
   c) You drew a reduction. The drawing has a diameter of 57 mm.
   d) You drew a reduction. The drawing has a diameter of about 6.3 mm.

   ___
   1

2) A scale of 2:5 means

   a) there are 2 units of the diagram length for every unit of the actual length
   b) there are 2 units of the diagram length for every 5 units of the actual length
   c) there are 5 units of the diagram length for every unit of the actual length
   d) there are 5 units of the diagram length for every 2 units of the actual length

   ___
   1

3) Pentagon JKLMN is similar to pentagon VWXYZ. What is the measurement of $\angle X$?

   a) 30°
   b) 60°
   c) 120°
   d) 150°
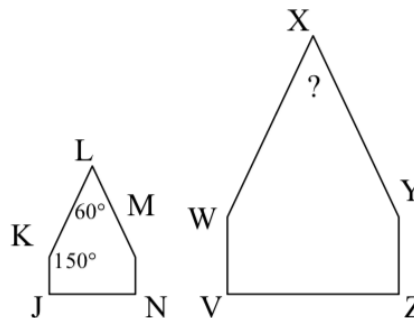
   ___
   1

4) Which of the following describes the diagram of a square after the actual square was reduced by a scale factor of 0.5?

   a) Its sides are 0.5 units longer than those of the actual square
   b) Its sides are 2 times as long as those of the actual square
   c) Its sides are 0.5 times as long as those of the actual square
   d) Its sides are 0.5 units shorter than those of the actual square

   ___
   1

5) Which of the following statements is true?

   a) Similar triangles have different side lengths but equal corresponding angles
   b) Similar triangles have equal side lengths but different corresponding angles
   c) Similar triangles have different side lengths and different corresponding angles
   d) Similar triangles have equal side lengths and equal corresponding angles

   ___
   1

Long Answer (17 marks)
- **Show your work to receive full marks!**

6) A digital picture on a computer screen is 8.2 mm wide. When the picture is printed it is enlarged by a scale of 1:3.5. Determine the width of the printed picture.

$$\overline{\quad}$$
1

7) The scale diagram of a basketball court uses a scale of 1:280. The length of the court measures 10 cm in the diagram.
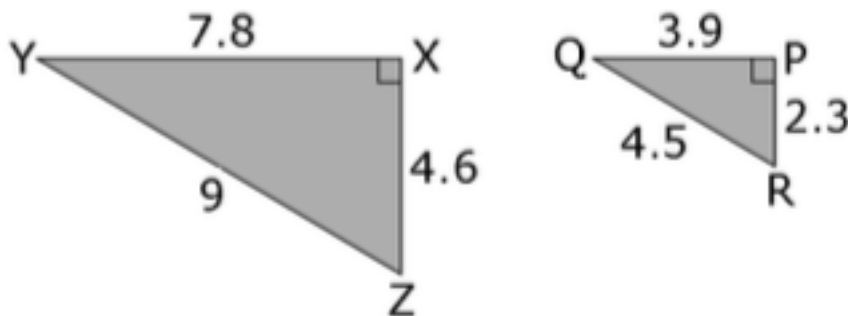
a) Determine the actual length of the court in cm.

$$\overline{\quad}$$
1

b) Determine the actual length of the court in m.

$$\overline{\quad}$$
1

8) Mrs. Coe designed a tote bag. In the design, the length of the bag is 8 cm. The actual length of the bag is 20 cm. Determine the scale factor Mrs. Coe used in her design.

$$\overline{\quad}$$
1

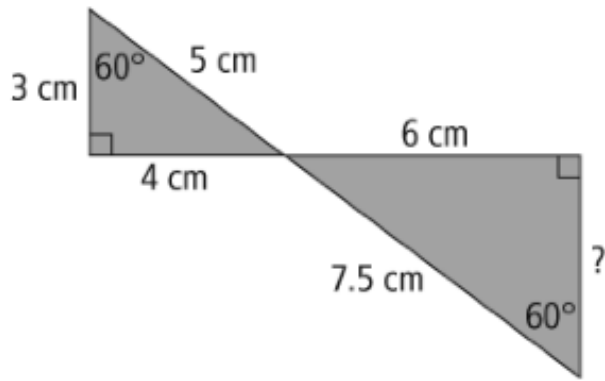9) Determine if the two triangles are similar.

Work must be shown for full marks!!!

$$\overline{\quad}$$
2

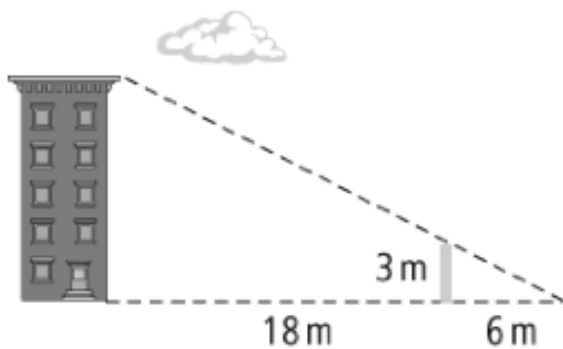10) The two triangles below are similar. Determine the missing side length.

Work must be shown for full marks!!!

3 cm
60° 5 cm
4 cm
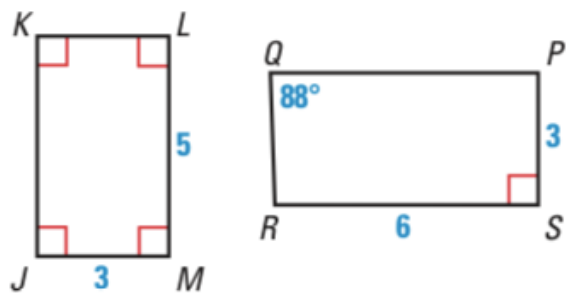6 cm
7.5 cm
60°
?

2

11) Examine the diagram below. What is the height of the building?

Work must be shown for full marks!!!

3 m
18 m   6 m

2

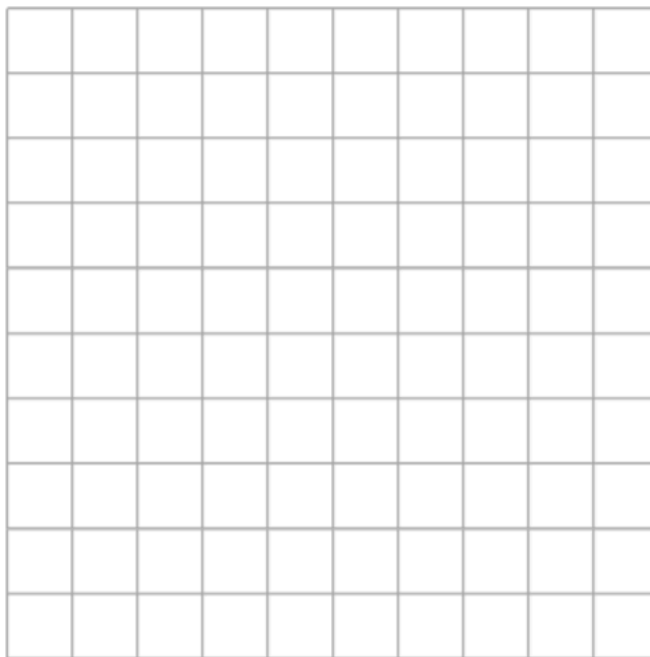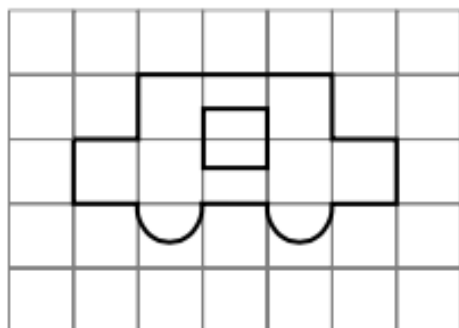12) Explain how you know the following polygons are not similar.

K   L
5
J   3   M

Q   P
88°
R   6   S
3

1

13) ADCB is similar to EHGF. Determine the missing sides x and y.

Work must be shown for full marks!!!

25 A 12
B
28 24
D
C

4.8
x E
F H
y
G 9.6

4
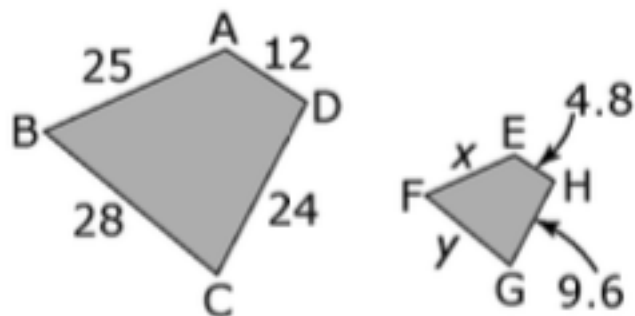
14) Drawn an enlargement of the figure using a scale factor of 2.

2

Score for Scale Factors & Similarity: _____ =
25