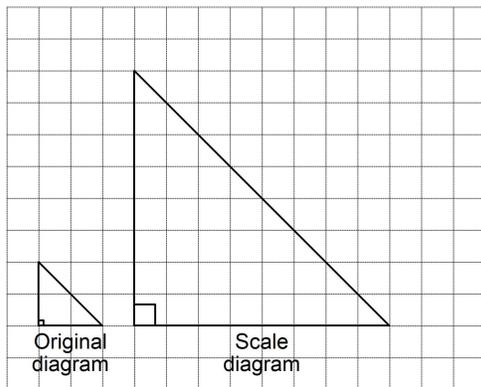


Math 9 Accelerated - Exam Review: Chapter 7

Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. Determine the scale factor for this scale diagram.



- A 32
- B 8
- C 4
- D $\frac{1}{4}$

2. A rectangle has length 6 cm and width 4 cm. The rectangle is to be enlarged by a scale factor of 8.

Calculate the length of the enlargement.

- A 80 cm
- B 48 cm
- C 32 cm
- D 14 cm

3. The side length of an equilateral triangle is 7 cm. A scale diagram of the triangle has side length 42 cm.

Determine the scale factor of the diagram.

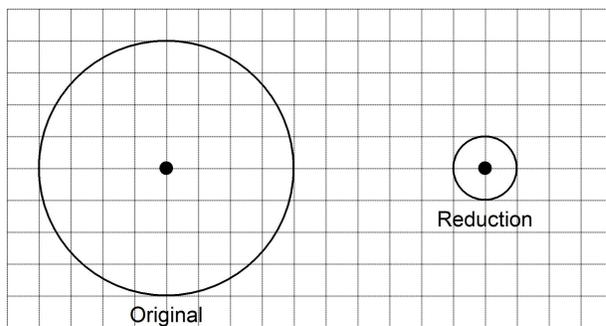
- A $\frac{1}{6}$
- B 2
- C 6
- D 35

4. One frame of a film in a projector is 5 cm high. The film is projected onto a giant screen. The image of the film frame is 12 m high.

What is the scale factor of this enlargement?

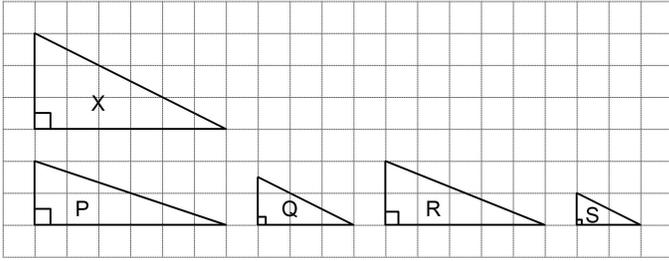
- A 240
- B $\frac{1}{240}$
- C 2.4
- D 24

5. Determine the scale factor for this reduction.



- A 8
- B 4
- C $\frac{1}{4}$
- D $\frac{1}{8}$

6. Which of triangles P, Q, R, and S are reductions of triangle X?



- A Triangles P, Q, and S
 B Triangles Q and S
 C Triangles P and Q
 D Triangles P, Q, and R

7. A square has side length 13.6 cm. The side length of the reduction is 3.4 cm. Determine the scale factor.

- A $\frac{5}{51}$
 B $\frac{51}{5}$
 C $\frac{1}{4}$
 D 4

8. A wheel has diameter 60 cm. Determine the diameter on a scale diagram if the scale factor is 0.07.

- A 86 cm
 B 42 cm
 C 4.2 cm
 D 67 cm

9. A soccer pitch is about 110 m long. A model of the soccer pitch is made using a scale of 1:70. Determine the length of the model to the nearest centimetre, if necessary.

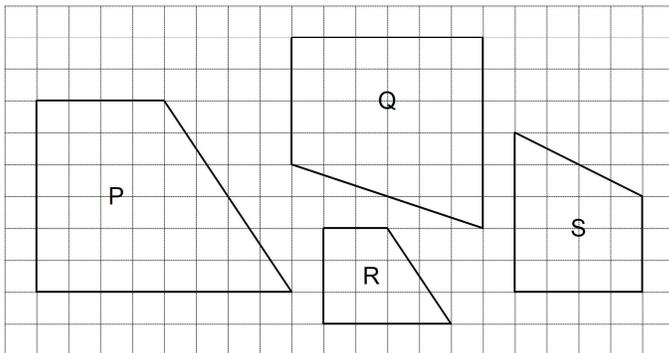
- A 1571 cm
 B 2 cm
 C 16 cm
 D 157 cm

10. Calculate the side length, in units, in this

proportion: $\frac{PQ}{8} = \frac{5}{160}$

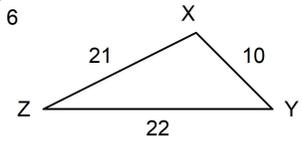
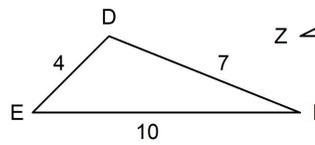
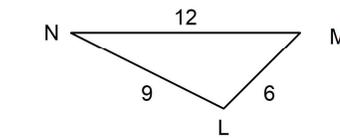
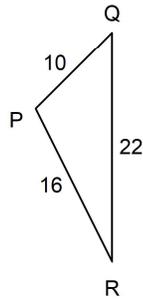
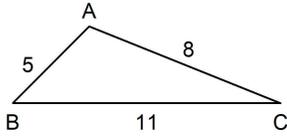
- A 0.08
 B 1.43
 C 4
 D 0.25

II. Identify similar quadrilaterals.



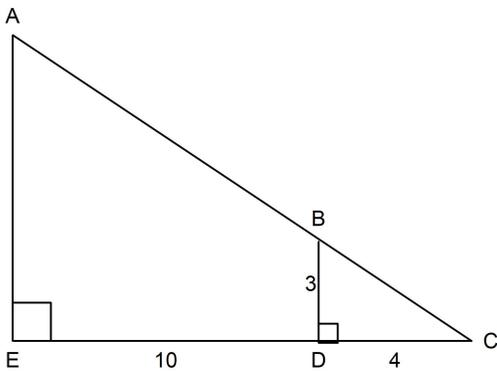
- A P and Q
 B P and R
 C R and S
 D Q and S

12. Which triangle is similar to $\triangle ABC$?



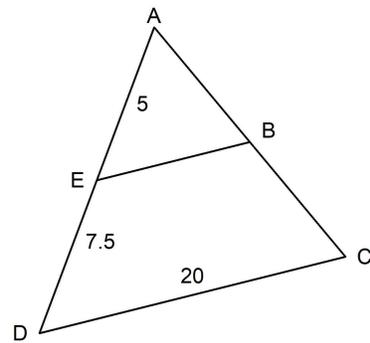
- A $\triangle XYZ$ B $\triangle PQR$ C $\triangle LMN$ D $\triangle DEF$

13. Determine the length of AE in this pair of similar triangles.



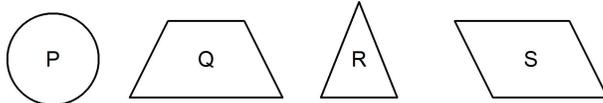
- A 3.3
B 10.5
C 7.5
D 4.3

14. Determine the length of EB in this pair of similar triangles.



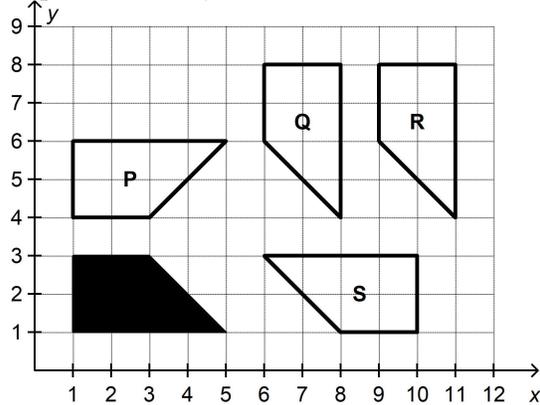
- A 13.3
B 10
C 8
D 5

15. Which shapes have exactly one line of symmetry?



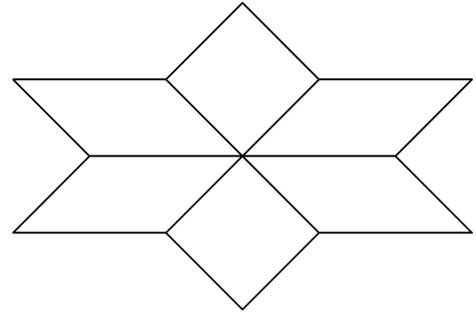
- A Shapes P, Q, R, S C Shapes Q, R
B Shapes P, S D Shapes P, Q, R

16. Identify the quadrilaterals that are related to the black quadrilateral by a line of reflection.



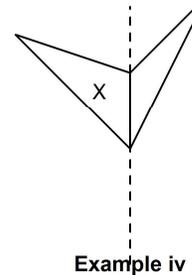
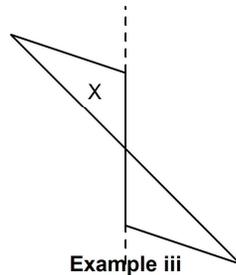
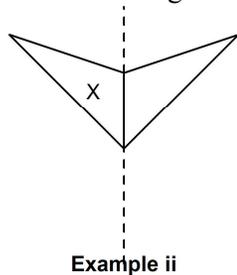
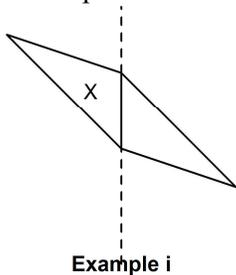
- A Quadrilaterals P, Q
 B Quadrilaterals P, Q, R, S
 C Quadrilaterals P, Q, R
 D Quadrilaterals P, Q, S

17. How many lines of symmetry does this tessellation have?



- A 6
 B 2
 C 4
 D 1

18. Which example shows a reflection of triangle X in the dotted line?



- A Example i B Example iii C Example iv D Example ii

19. What is the angle of rotation symmetry for a shape that has rotational symmetry of order 3?

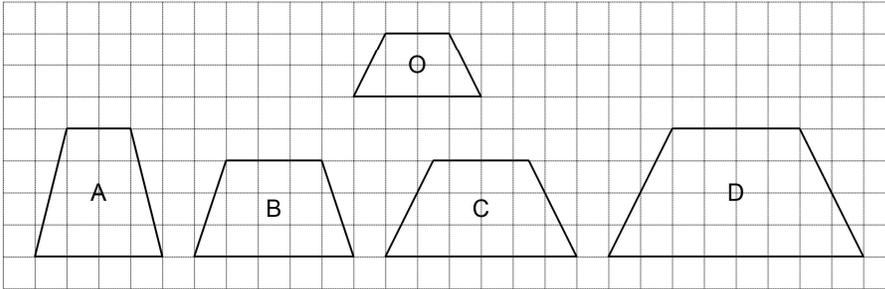
- A 90°
 B 100°
 C 60°
 D 120°

20. The angle of rotation symmetry for a shape is 60° . What is the order of rotational symmetry?

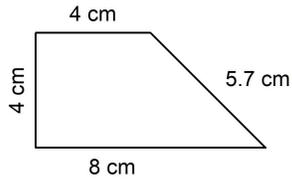
- A 6
 B 4
 C 3
 D 8

Short Answer

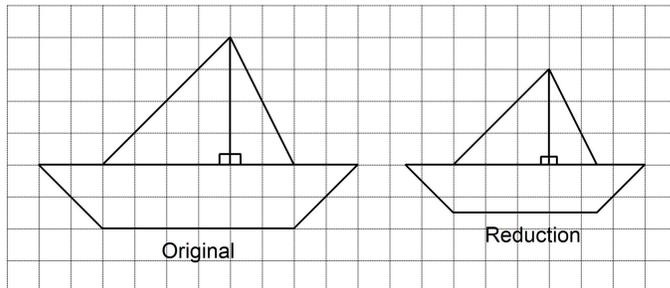
1. Which of trapezoids A, B, C, and D are scale diagrams of trapezoid O?



2. An enlargement of the shape below is made using a scale factor of 2. Determine the side lengths of the enlargement.

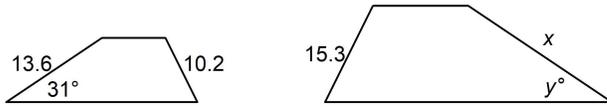


3. Determine the scale factor of this reduction as a fraction and as a decimal.

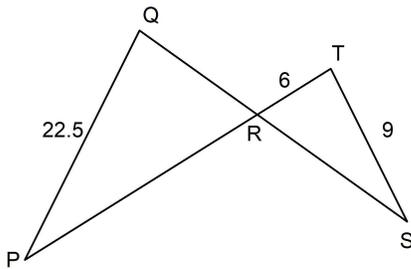


4. A building is 210 m tall. A scale model is built using a scale factor of 0.005. Determine the height of the model to the nearest centimetre, if necessary.
5. A hockey rink measures 52 m by 23 m. A scale diagram is drawn using a scale factor of $\frac{1}{200}$. Determine the dimensions of the rink in the scale diagram to the nearest centimetre.

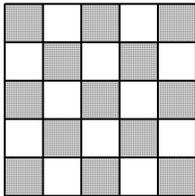
6. These quadrilaterals are similar. Determine the values of x and y° .



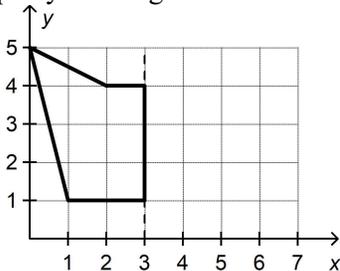
7. Any two of which shape will always be similar? Give two examples.
8. Determine the length of QR in these similar triangles.



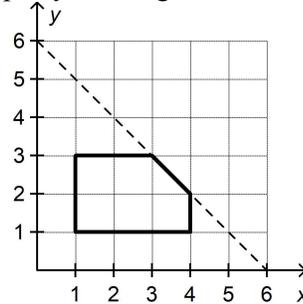
9. When the shadow of an electrical tower is 10.8 m long, a 4-m lamp post casts a shadow 6 m long. How tall is the electrical tower?
10. Draw the lines of symmetry in this tessellation.



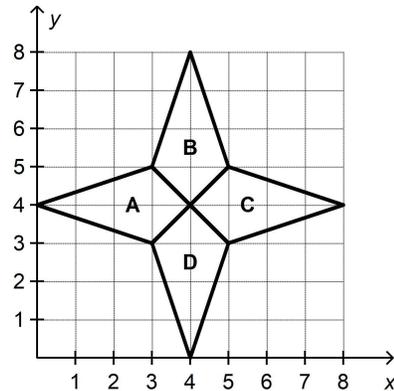
11. This polygon is one-half of a shape. Use the dotted line as a line of symmetry to complete the shape by drawing its other half.



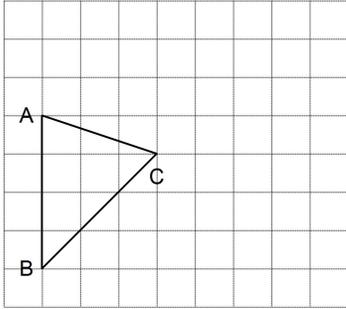
12. This polygon is one-half of a shape. Use the dotted line as a line of symmetry to complete the shape by drawing its other half.



13. This design was created by reflecting quadrilateral A to create quadrilaterals B, C, and D. Describe the reflections.



14. a) Rotate $\triangle ABC$ 90° clockwise about vertex C.
Draw the rotation image.
b) Rotate $\triangle ABC$ 180° clockwise about vertex C.
Draw the rotation image.

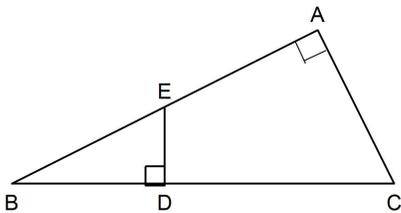


15. Describe two different rotations that will result in this square coinciding with itself.

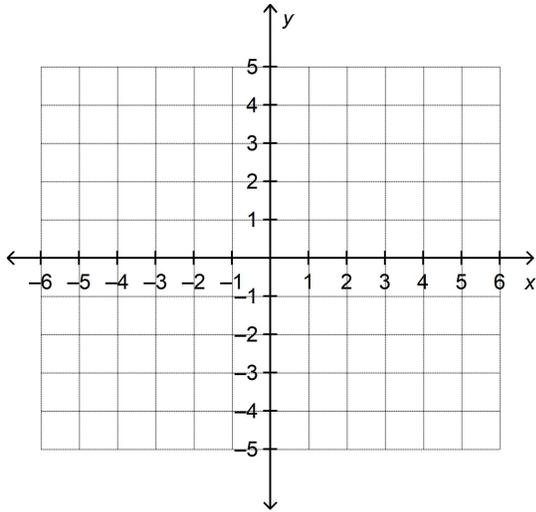


Problem

- A rectangle measures 9 cm by 7 cm.
A scale diagram of the rectangle measures 54 cm by 42 cm.
 - Determine the scale factor.
 - A square has side length 12 cm. Using the scale factor from part a, determine the side length of the scale diagram.
- A luxury cruise ship is 38 m long. A model of this ship is 15.2 cm long. Determine the scale factor of the model.
 - A Boeing 787 plane is 57 m long. Determine the length of a model of the plane using the same scale factor as in part a.
 - The Spitfire, a plane made famous in WWII, is 10.4 m long. Would you build a model of this plane using the same scale factor as in part a? Justify your answer.
- Identify the similar triangles. Justify your answer.



4. a) Graph these points on the grid below: $P(-2, 2)$, $Q(-2, 5)$, and $R(2, 2)$.
Join the points to form $\triangle PQR$.
- b) Reflect $\triangle PQR$ in the oblique line through $(-5, -5)$ and $(5, 5)$. Draw and label its image.
- c) Reflect $\triangle PQR$ in the oblique line through $(-5, 5)$ and $(5, -5)$. Draw and label its image.
- d) Reflect the image from part b in the oblique line through $(-5, 5)$ and $(5, -5)$.
Draw and label its image.
- e) Write the coordinates of the shape formed by $\triangle PQR$ and the images.
- f) How many lines of symmetry does this shape have? How do you know?



5. Quadrilateral PQRS is rotated 180° about the origin, then 90° clockwise about the origin, then 180° about the origin, and finally 270° counterclockwise about the origin.
Draw and label the final rotation image of quadrilateral PQRS.

