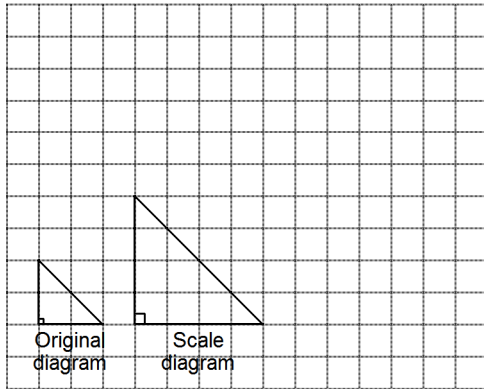


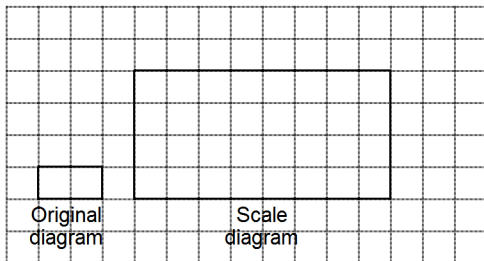
Math 9: Scale Diagrams - Enlargement

Short Answer

- Determine the scale factor for this scale diagram.

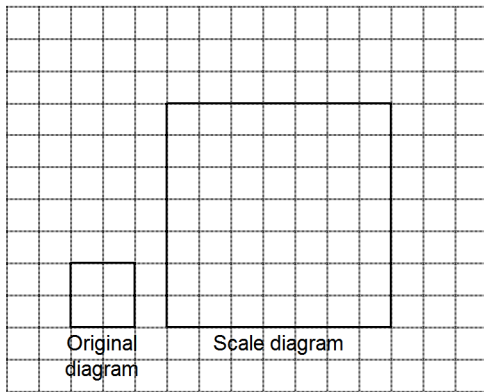


- A rectangle has length 7 cm and width 5 cm. The rectangle is to be enlarged by a scale factor of 5. Calculate the length of the enlargement.
- The side length of an equilateral triangle is 4 cm. A scale diagram of the triangle has side length 20 cm. Determine the scale factor of the diagram.
- Determine the scale factor for this scale diagram.

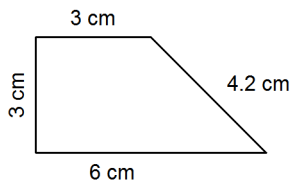


- In a photo, the length of a model car is 4.2 cm. The photo is to be enlarged by a scale factor of 2.5. Determine the length of the car in the enlargement.
- A pencil has diameter 9 mm. A scale diagram of the pencil has diameter 5.4 cm. Determine the scale factor of the diagram.

7. A square frame is projected onto a screen using an overhead projector. The original square frame has side length 7 cm. The square frame is enlarged by a scale factor of 6.6. Determine the side length of the square frame on the screen.
8. 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 15 m high. What is the scale factor of this enlargement?
9. Determine the scale factor for this scale drawing.

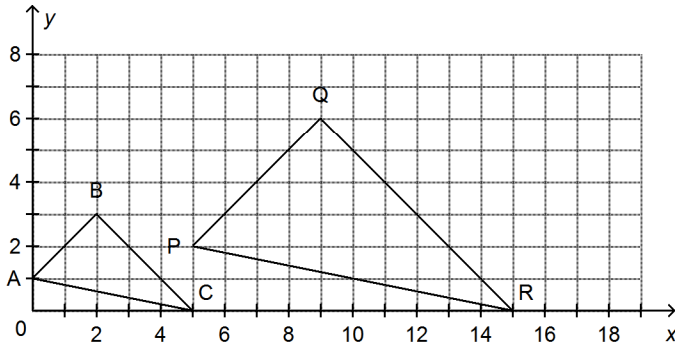


10. A square has side length 4.5 cm. The square is enlarged by a scale factor of 5.5. Determine the side length of the enlargement.
11. An enlargement of the shape below is made using a scale factor of 2. Determine the side lengths of the enlargement.

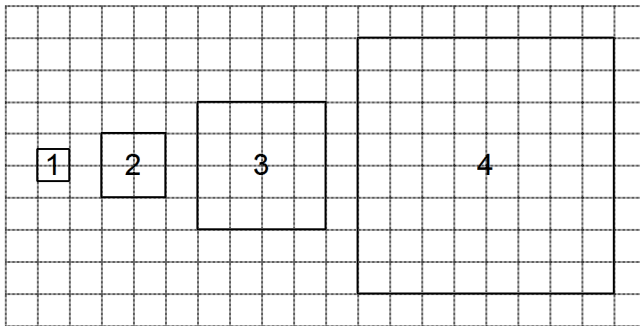


12. A photo has dimensions 15.5 cm by 12.3 cm. The photo is to be enlarged by a scale factor of 3.6. Calculate the dimensions of the enlargement.

13. Is $\triangle PQR$ a scale diagram of $\triangle ABC$? If yes, state the scale factor.



14. a) Determine the scale factor used to create this pattern of squares.
 b) Determine the side length of Square 8.



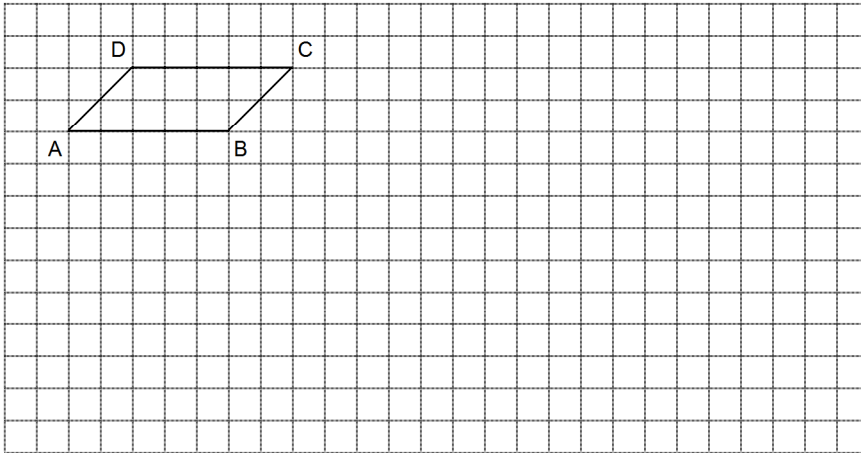
Problem

15. a) Complete the table.

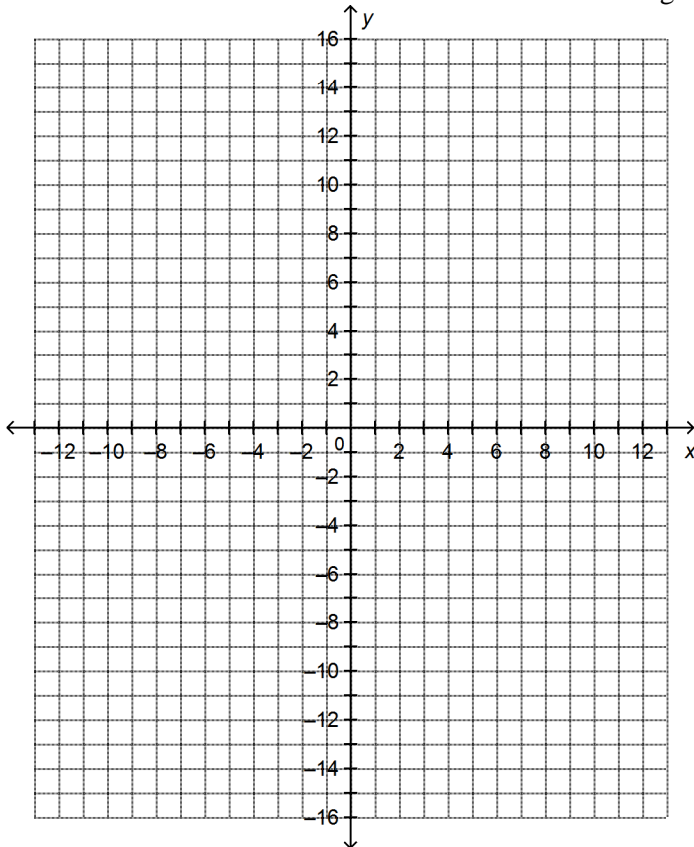
Side length of original square	Area of original square	Scale factor	Side length of scale diagram	Area of scale diagram
5 cm		3		
6 cm		3		
7 cm		3		
8 cm		3		

- b) What does the scale factor indicate about the scale diagram? Explain.

16. Draw a scale diagram of parallelogram ABCD with scale factor 2.



17. On a grid, draw $\triangle OAB$ with vertices $O(0, 0)$, $A(4, 2)$, and $B(2, 6)$.
 a) Draw a scale diagram of $\triangle OAB$ with scale factor 2 and one vertex at $(1, 1)$.
 Write the coordinates of the vertices of the new triangle.



- b) Is there more than one answer for part a)?
 If your answer is no, explain why no other diagrams are possible.
 If your answer is yes, draw other possible scale diagrams.
 Write the coordinates of the vertices for each new triangle you draw.

Math 9: Scale Diagrams - Enlargement Answer Section

SHORT ANSWER

1. ANS:

2

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

2. ANS:

35 cm

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

3. ANS:

5

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

4. ANS:

4

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

5. ANS:

10.5 cm

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

6. ANS:

6

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements

LOC: 9.SS4 TOP: Shape and Space (Transformations)

KEY: Procedural Knowledge

7. ANS:
46.2 cm

PTS: 1 DIF: Easy REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

8. ANS:
300

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

9. ANS:
The scale factor is 3.5.

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

10. ANS:
24.75 cm

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

11. ANS:
6 cm, 6 cm, 8.4 cm, and 12 cm

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

12. ANS:
55.8 cm by 44.28 cm

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

13. ANS:
Yes, ΔPQR is a scale diagram of ΔABC .
The scale factor is 2.

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Procedural Knowledge

14. ANS:
 a) The scale factor is 2.
 b) 128

PTS: 1 DIF: Difficult REF: 7.1 Scale Diagrams and Enlargements
 LOC: 9.SS4 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge

PROBLEM

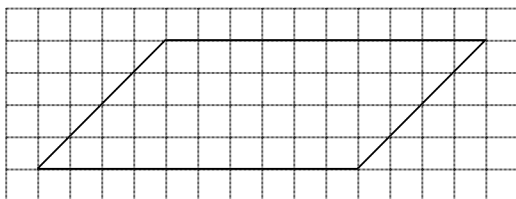
15. ANS:
 a)

Side length of original square	Area of original square	Scale factor	Side length of scale diagram	Area of scale diagram
5 cm	25 cm ²	3	15 cm	225 cm ²
6 cm	36 cm ²	3	18 cm	324 cm ²
7 cm	49 cm ²	3	21 cm	441 cm ²
8 cm	64 cm ²	3	24 cm	576 cm ²

- b) The scale factor indicates that the scale diagram is 3 times the size of the original diagram.

PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
 LOC: 9.SS4 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge | Communication

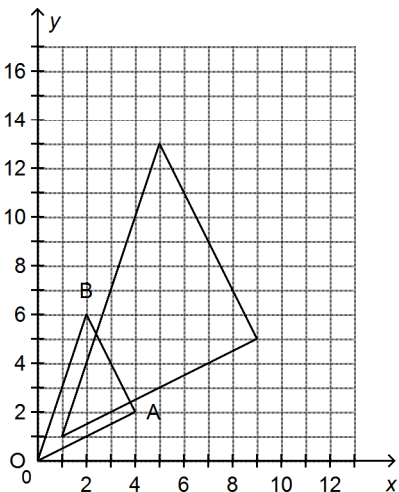
16. ANS:



PTS: 1 DIF: Moderate REF: 7.1 Scale Diagrams and Enlargements
 LOC: 9.SS4 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge

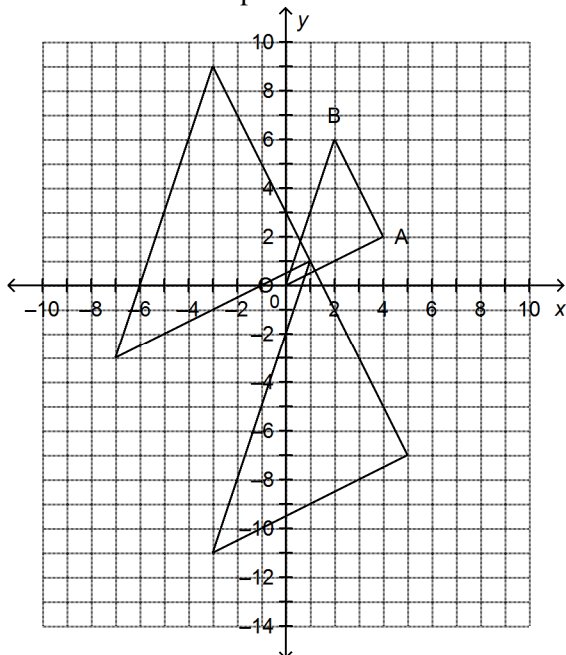
17. ANS:
Sample Answers

a)



The coordinates of the vertices of the new triangle are: (1, 1), (9, 5), (5, 13)

b) There are two other possibilities.



The coordinates of the triangle at the top left are: (1, 1), (63, 9), (67, 63)

The coordinates of the triangle at the bottom are: (1, 1), (5, 67), (63, 611)

PTS: 1 DIF: Difficult REF: 7.1 Scale Diagrams and Enlargements
LOC: 9.SS4 TOP: Shape and Space (Transformations)
KEY: Problem-Solving Skills