

Enlargements

Year 7 About 75 minutes No calculator 47 marks



Hints online, answers free with an account:
mathswariz.uk/worksheets/ks3-year-7-enlargements/

Date _____

A Do Now

Quick questions to start.

- A1** [Needed today] [1 mark] Work out 3×2.5 .
- A2** [Needed today] [1 mark] A rectangle is 4 cm by 7 cm. Work out its area.

Answer

Answer

- A3** [Last lesson] [1 mark] The point $(4, -1)$ is translated 2 units left and 5 units up. Write down its image.
- A4** [From chapter 1] [1 mark] Write 36 as a product of its prime factors.

Answer

Answer

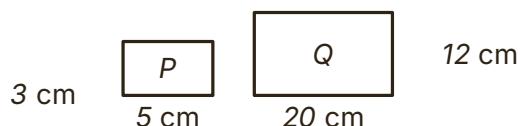
B Example, then your turn

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Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

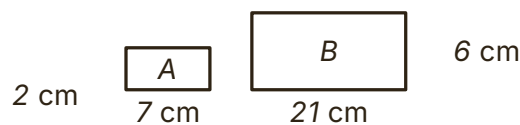
Is rectangle Q an enlargement of rectangle P ? If it is, write down the scale factor.



Not drawn accurately

Hint Divide each side of Q by the matching side of P . An enlargement needs the same answer both times.

- B1** [2 marks] Rectangle B is an enlargement of rectangle A . Work out the scale factor. Show that both pairs of sides give it.

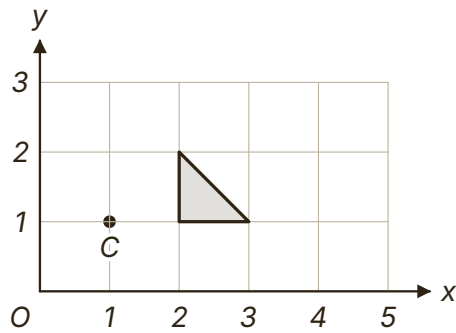


Not drawn accurately

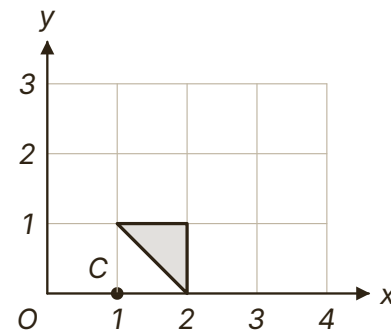
Answer

EXAMPLE 2

Enlarge the triangle by scale factor 2, centre C . Write down the corners of the image.



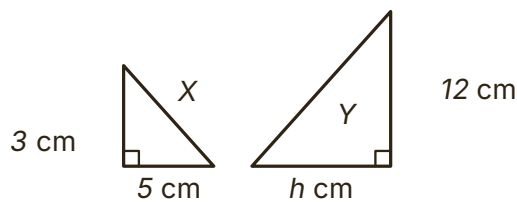
Hint Count across and up from C to each corner. Double both counts, then count that far from C .

B2 Enlarge the triangle by scale factor 3, centre C . Write down the corners of the image. [2 marks]

Answer

EXAMPLE 3

Triangle Y is an enlargement of triangle X . Work out h .

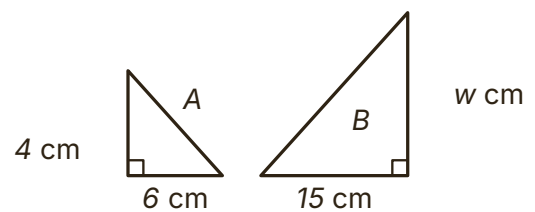


Not drawn accurately

Hint Find the scale factor from the pair of sides you know. Then multiply.

B3 B is an enlargement of A . [2 marks]

Work out w .



Not drawn accurately

Answer

c Practice

Year 7

- C1** A triangle has corners $(2, 1)$, $(-1, 3)$ and $(0, -2)$. It is enlarged by scale factor 3 with centre the origin $(0, 0)$. Write down the corners of the image. [2 marks]

Answer

- C2** A rectangle is 5 cm by 3 cm. It is enlarged by scale factor 4. Work out the perimeter of the image. [2 marks]

Answer

- C3

Rectangle A is 4 cm by 6 cm.

[2 marks]

Which of these is not an enlargement of A ? Give a reason.

P : 8 cm by 12 cm,

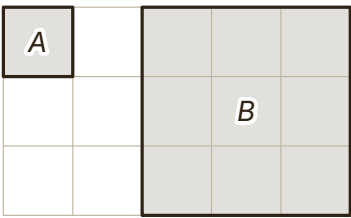
Q : 10 cm by 15 cm,

R : 12 cm by 16 cm
- C4

B is an enlargement of A .

[2 marks]

Work out the scale factor. Show how you got it.



Answer

D

Exam-style questions

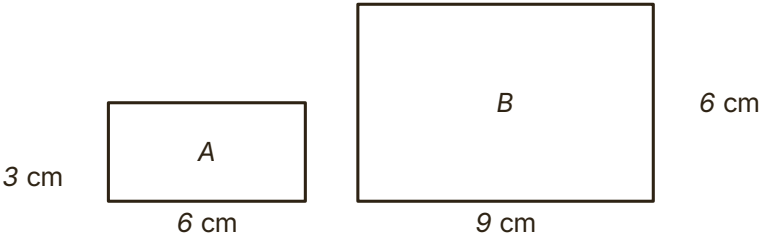
GCSE Foundation

- D1

Ben says, "Rectangle B is an enlargement of rectangle A , because every side of B is 3 cm longer than the matching side of A ."

[5 marks]

Ben is wrong. Explain why. Then work out how tall B would need to be, keeping its width of 9 cm, to be an enlargement of A .



Not drawn accurately

- D2

The triangle and the point P are drawn on the grid.

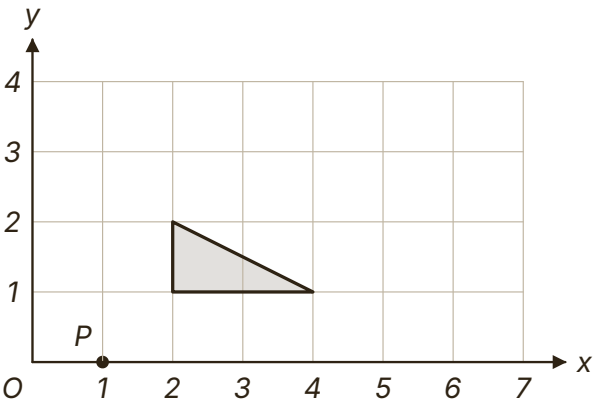
- (a)

The triangle is enlarged by scale factor 2 with centre P .

[2 marks]

Write down the coordinates of the corners of the image.

Answer



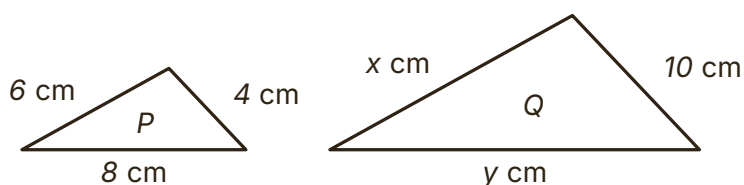
- (b) Work out the area of the triangle and the area of its image. How many times bigger is the area of the image? [3 marks]

Answer

Total for D2: 5 marks

- D3** Triangle Q is an enlargement of triangle P . The side of 10 cm on Q matches the side of 4 cm on P .

- (a) Work out the scale factor. [1 mark]



Answer

Not drawn accurately

- (b) Work out the lengths x and y . [2 marks]

Answer

- (c) Work out the perimeter of triangle Q . [2 marks]

Answer

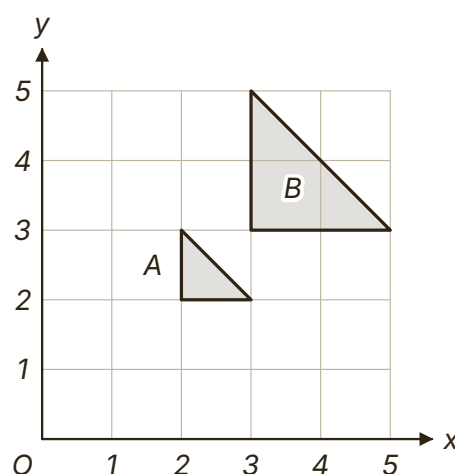
Total for D3: 5 marks

- D4** Triangle B is an enlargement of triangle A .

- (a) Write down the scale factor of the enlargement. [1 mark]

Answer

- (b) Draw lines through matching corners of A and B . Write down the coordinates of the centre of the enlargement. [2 marks]



Answer

- (c) B is enlarged again by scale factor 4, same centre. What single scale factor takes A to the new triangle? [2 marks]

Answer

Total for D4: 5 marks

D5 A photo is 6 cm wide and 4 cm tall.

- (a) The photo is enlarged by scale factor 2.5. Work out the width and the height of the enlarged photo. [2 marks]

Answer

- (b) A different enlargement of the photo is 18 cm tall. Work out its width. [2 marks]

Answer

Total for D5: 4 marks

E Extension

Stretch

No route is given. The hints are at the end of the sheet. Use one at a time.

- E1** Triangle T has an area of 5 cm^2 . T is enlarged by scale factor 2 to give triangle U . Then U is enlarged by scale factor 3 to give triangle V . Work out the area of triangle V . [5 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Every length of T is multiplied by 2 and then by 3. What is that as one scale factor?
- Hint 2** One scale factor of 6. A square of side 1 cm would become a square of side 6 cm, so its area is multiplied by 6×6 .
- Hint 3** The area is multiplied by 36, so the area of V is $5 \times 36 = 180 \text{ cm}^2$.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

- I can enlarge a shape by a scale factor from a centre. ☐ ☐ ☐
- I can find a scale factor and use it to find a missing length. ☐ ☐ ☐
- I know what an enlargement does to perimeter and to area. ☐ ☐ ☐