

GCSE Maths Transformations and Similarity (Foundation): check-up and exam-style questions: worksheet

GCSE Maths - Transformations and Similarity - Foundation - Test yourself

Name: _____

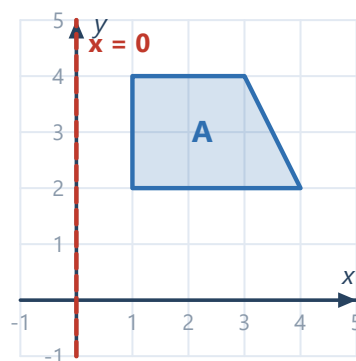
Date: _____

Score: _____

22 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch21-transformations-congruence-similarity/foundation/check-up-and-exam-style-questions/

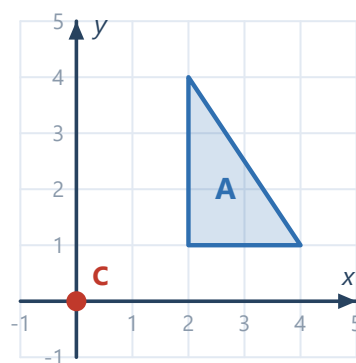
Exercise 21Z Check-up (non-calculator) Non-calculator

- 1 Reflect shape A in the y -axis. Write down the coordinates of the vertices of the image. A has vertices at (1, 2), (4, 2), (3, 4), (1, 4).



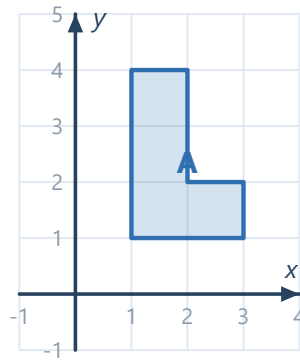
Answer: _____

- 2 Rotate shape A through 90° anticlockwise about the point C (0, 0). Write down the coordinates of the vertices of the image B. A has vertices at (2, 1), (4, 1), (2, 4).



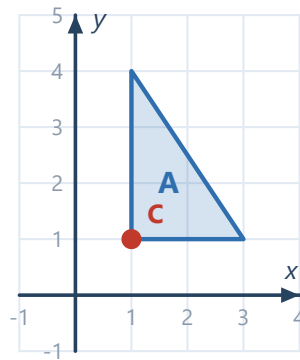
Answer: _____

- 3 Translate shape A by the vector $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$. Write down the coordinates of the vertices of the image B. A has vertices at (1, 1), (3, 1), (3, 2), (2, 2), (2, 4), (1, 4).



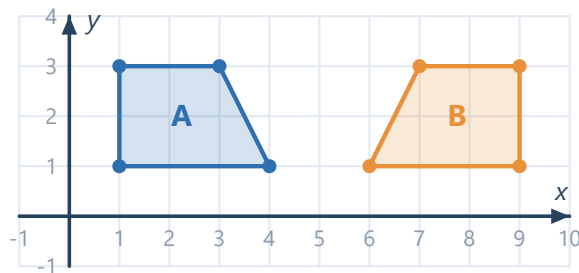
Answer:

- 4 Enlarge shape A with scale factor 2 and centre C (1, 1). Write down the coordinates of the vertices of the image B. A has vertices at (1, 1), (3, 1), (1, 4).



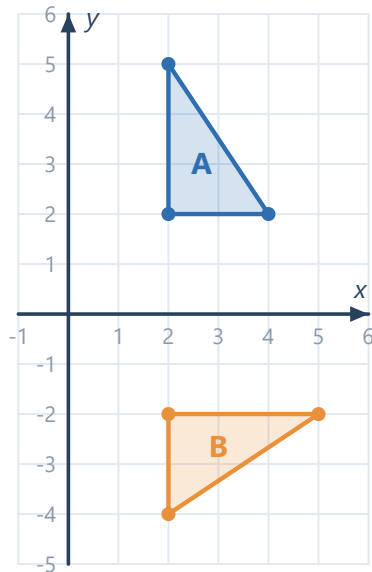
Answer:

- 5 Describe fully the single transformation that maps shape A onto shape B.



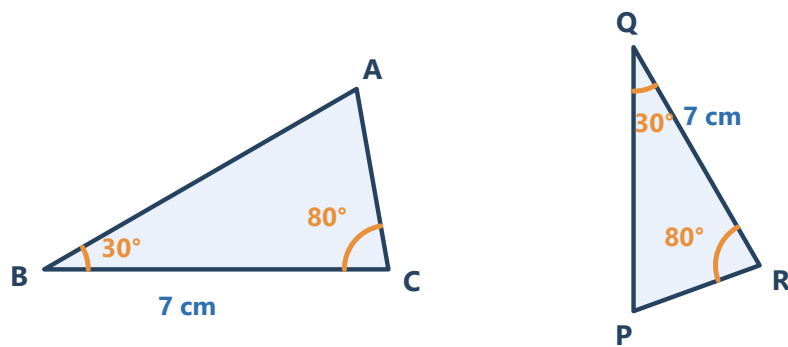
Answer:

- 6 Describe fully the single transformation that maps shape A onto shape B.



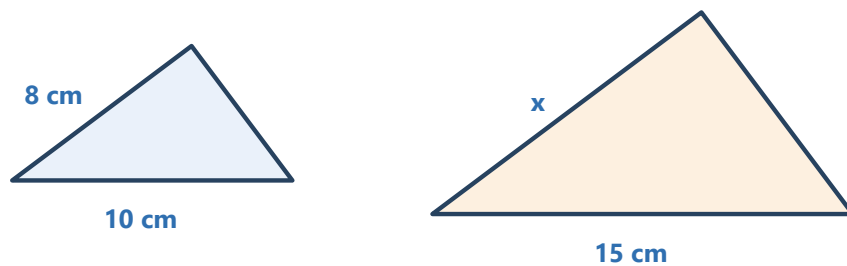
Answer:

- 7 Are triangles ABC and PQR congruent? Give a reason.



Answer:

- 8 The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



Answer:

- 9 Two similar shapes have a length scale factor of 5. The area of the smaller shape is 4 cm^2 . Work out the area of the larger shape.

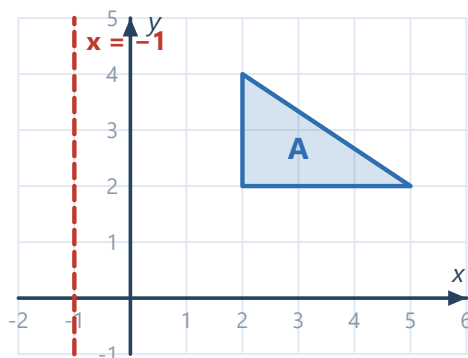
Answer:

- 10** The lengths of two similar shapes are in the ratio 3 : 5. Write down the ratio of their areas and the ratio of their volumes.

Answer:

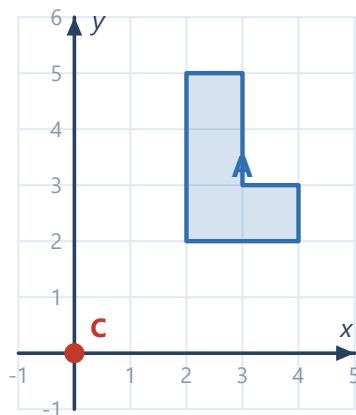
Exercise 21X Exam-style questions Non-calculator

- 1** Triangle A is drawn on the grid. Reflect triangle A in the line $x = -1$. Write down the coordinates of the vertices of the image. A has vertices at (2, 2), (5, 2), (2, 4). [2 marks]



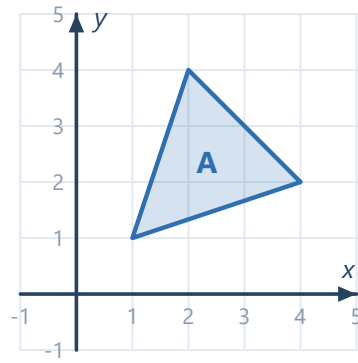
Answer:

- 2** Rotate shape A through 90° anticlockwise about the origin. Write down the coordinates of the vertices of the image. A has vertices at (2, 2), (4, 2), (4, 3), (3, 3), (3, 5), (2, 5). [2 marks]



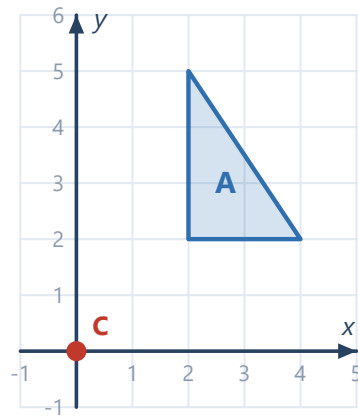
Answer:

- 3** Translate triangle A by the vector $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$. Write down the coordinates of the vertices of the image. A has vertices at (1, 1), (4, 2), (2, 4). [2 marks]



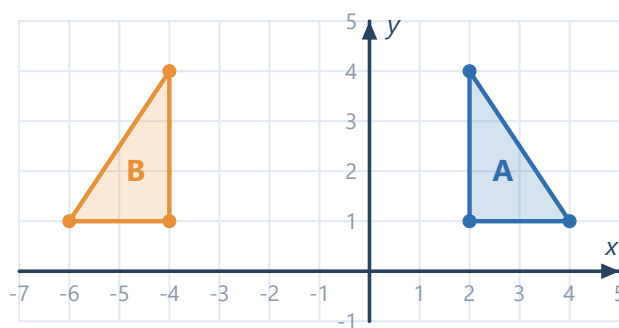
Answer:

- 4** Enlarge triangle A with scale factor 2 and centre (0, 0). Write down the coordinates of the vertices of the image. A has vertices at (2, 2), (4, 2), (2, 5). [2 marks]



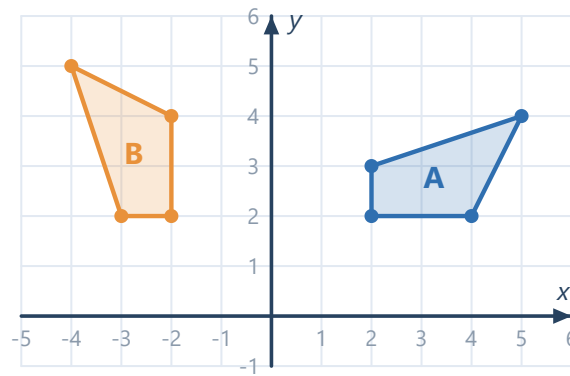
Answer:

- 5** Describe fully the single transformation that maps triangle A onto triangle B. [2 marks]



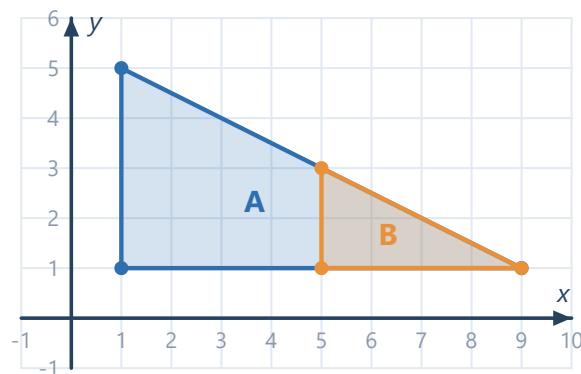
Answer:

- 6** Describe fully the single transformation that maps shape A onto shape B. [3 marks]



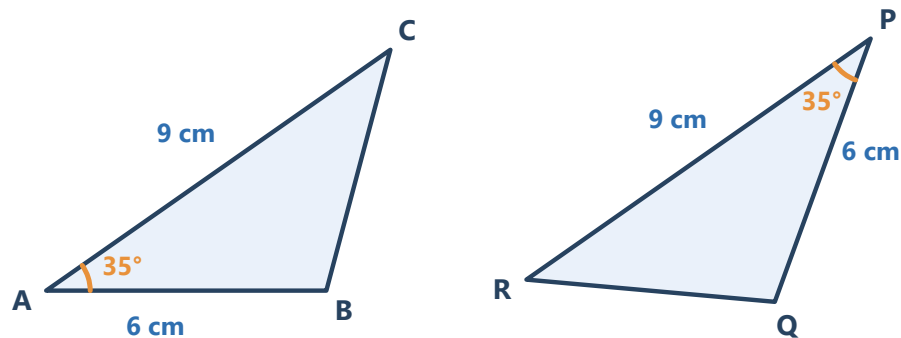
Answer:

- 7** Describe fully the single transformation that maps triangle A onto triangle B. [3 marks]



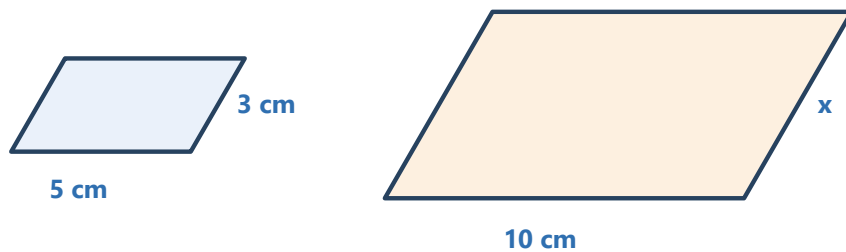
Answer:

- 8** Triangles ABC and PQR are shown. Are the two triangles congruent? Give a reason for your answer. [3 marks]



Answer:

- 9** The two parallelograms are mathematically similar. Work out the value of x . [3 marks]



Answer:

- 10** A flagpole casts a shadow 12 m long. At the same time a 1 m ruler, standing upright, casts a shadow 0.8 m long. Work out the height of the flagpole. [3 marks]

Answer:

- 11** Shape P and shape Q are similar. The length of Q is 3 times the length of P. The area of P is 8 cm^2 . Work out the area of Q. [2 marks]

Answer:

- 12** Solid S and solid T are similar. Each length on T is 2 times the matching length on S. The volume of S is 12 cm^3 . (a) Work out the volume of T. The surface area of S is 20 cm^2 . (b) Work out the surface area of T. [4 marks]

(a) (a) Volume of T

Answer:

(b) (b) Surface area of T

Answer: