JRA Tutors
Private tuition and small online Study Pods

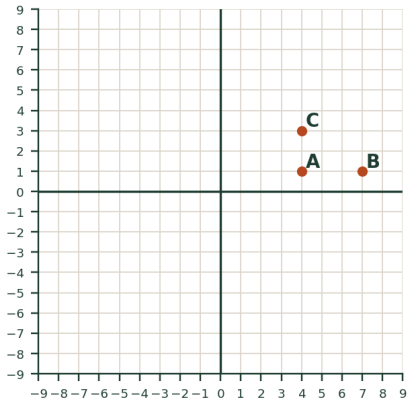
Transformations

Grade 3 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (50 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 71 marks.

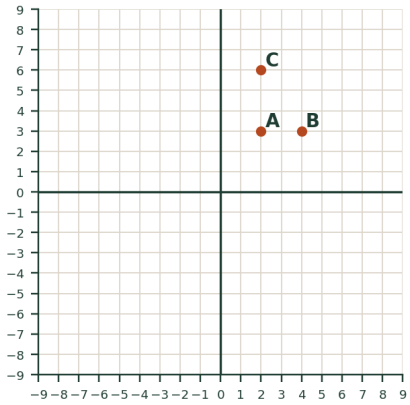
Warm-up

1 The triangle ABC has vertices A(4, 1), B(7, 1) and C(4, 3). It is translated by the vector (3, −4) (3 units right, 4 units down). Write down the new coordinates. **[3 marks]**



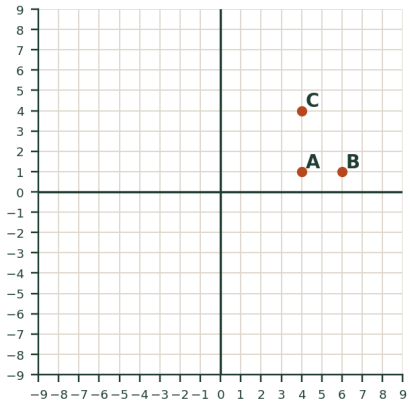
Answer _____

2 The triangle ABC has vertices A(2, 3), B(4, 3) and C(2, 6). It is translated by the vector (5, −1) (5 units right, 1 units down). Write down the new coordinates. **[3 marks]**



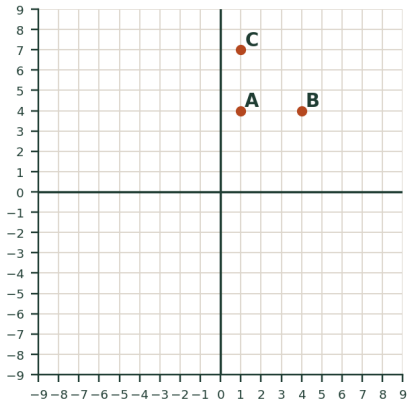
Answer _____

3 The triangle ABC has vertices A(4, 1), B(6, 1) and C(4, 4). It is translated by the vector (3, −2) (3 units right, 2 units down). Write down the new coordinates. **[3 marks]**



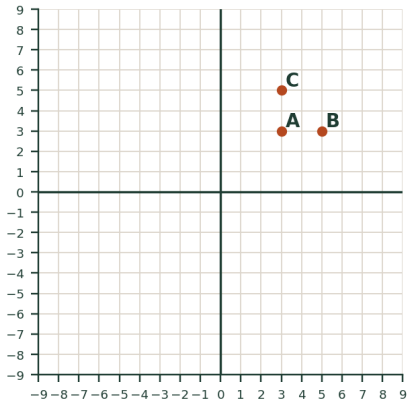
Answer _____

4 The triangle ABC has vertices A(1, 4), B(4, 4) and C(1, 7). It is translated by the vector (5, −3) (5 units right, 3 units down). Write down the new coordinates. **[3 marks]**



Answer _____

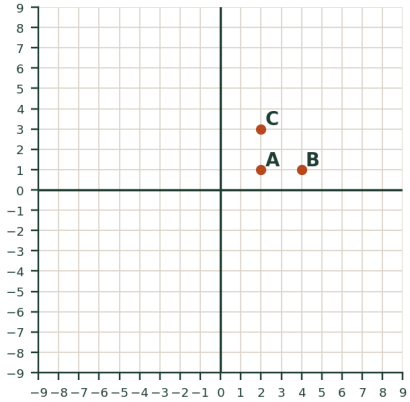
5 The triangle ABC has vertices A(3, 3), B(5, 3) and C(3, 5). It is translated by the vector (3, −4) (3 units right, 4 units down). Write down the new coordinates. **[3 marks]**



Answer _____

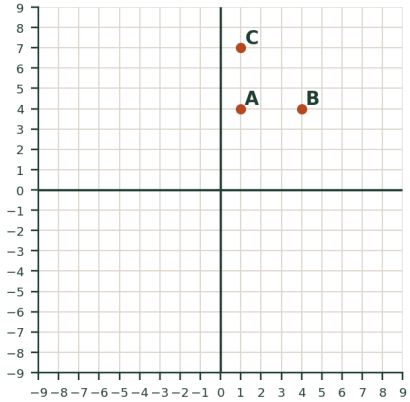
Core

6 Triangle ABC has vertices A(2, 1), B(4, 1) and C(2, 3). It is reflected in the y-axis. Write down the new coordinates. **[3 marks]**



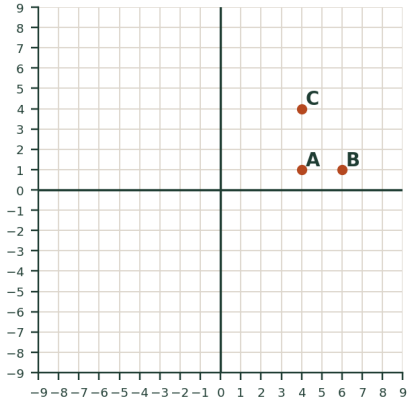
Answer _____

7 Triangle ABC has vertices A(1, 4), B(4, 4) and C(1, 7). It is reflected in the x-axis. Write down the new coordinates. **[3 marks]**



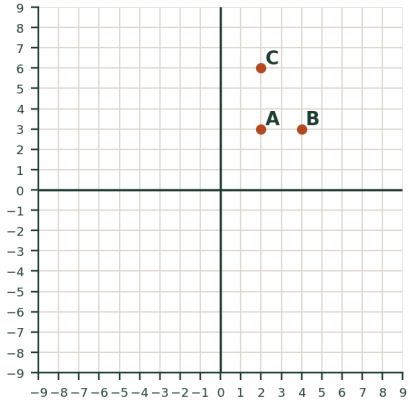
Answer _____

8 Triangle ABC has vertices A(4, 1), B(6, 1) and C(4, 4). It is reflected in the y-axis. Write down the new coordinates. **[3 marks]**



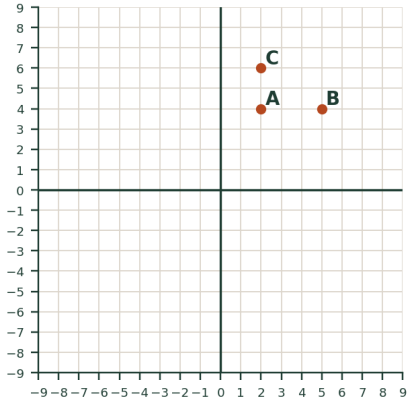
Answer _____

9 Triangle ABC has vertices A(2, 3), B(4, 3) and C(2, 6). It is reflected in the x-axis. Write down the new coordinates. **[3 marks]**



Answer _____

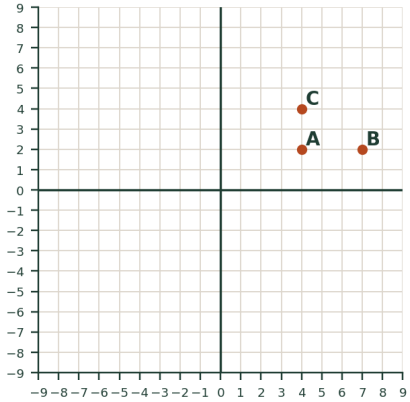
10 Triangle ABC has vertices A(2, 4), B(5, 4) and C(2, 6). It is reflected in the y-axis. Write down the new coordinates. **[3 marks]**



Answer _____

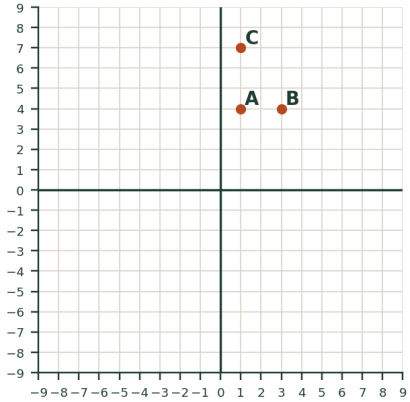
Stretch

11 Triangle ABC has vertices A(4, 2), B(7, 2) and C(4, 4). It is rotated 180° about the origin. Write down the new coordinates. **[4 marks]**



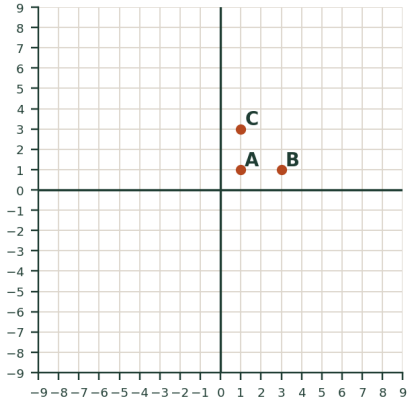
Answer _____

12 Triangle ABC has vertices A(1, 4), B(3, 4) and C(1, 7). It is rotated 90° clockwise about the origin. Write down the new coordinates. **[4 marks]**



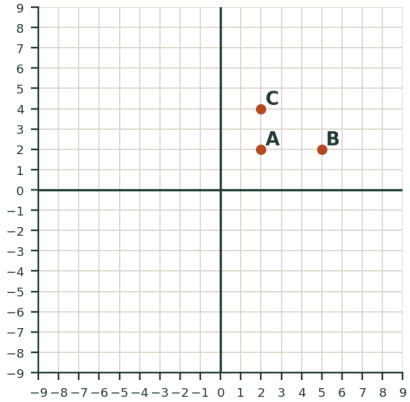
Answer _____

13 Triangle ABC has vertices A(1, 1), B(3, 1) and C(1, 3). It is rotated 90° anticlockwise about the origin. Write down the new coordinates. **[4 marks]**



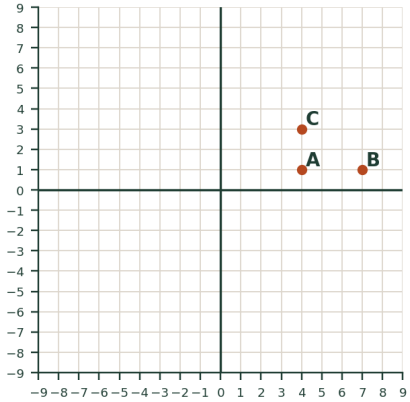
Answer _____

14 Triangle ABC has vertices A(2, 2), B(5, 2) and C(2, 4). It is reflected in the line y = x. Write down the new coordinates. **[4 marks]**



Answer _____

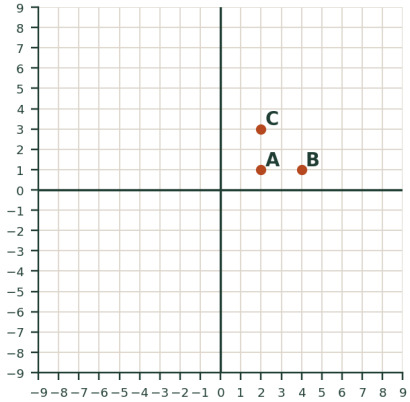
15 Triangle ABC has vertices A(4, 1), B(7, 1) and C(4, 3). It is enlarged by scale factor 2, centre the origin. Write down the new coordinates. **[4 marks]**



Answer _____

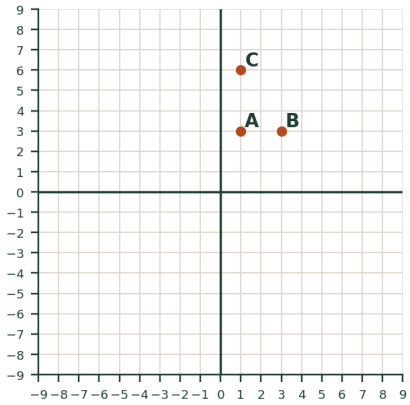
Challenge

16 Triangle ABC has vertices A(2, 1), B(4, 1) and C(2, 3). It is reflected in the line x = 6. Write down the new coordinates. **[4 marks]**



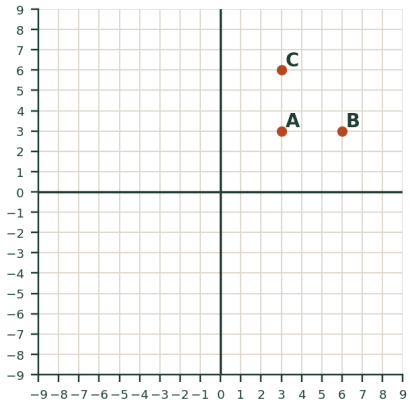
Answer _____

17 Triangle ABC has vertices A(1, 3), B(3, 3) and C(1, 6). It is enlarged by scale factor 2, centre the origin. Work out the ratio of the area of the enlarged triangle to the area of ABC. **[4 marks]**



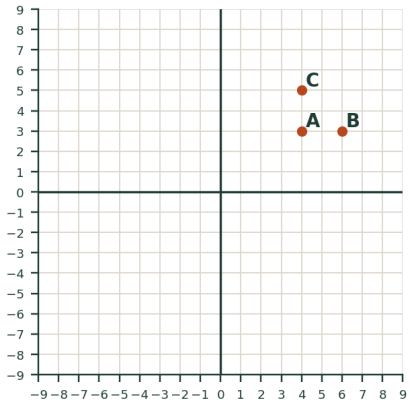
Answer _____

18 Triangle ABC has vertices A(3, 3), B(6, 3) and C(3, 6). It is reflected in the x-axis and then translated by the vector (0, 2). Write down the final coordinates. **[5 marks]**



Answer _____

19 Triangle ABC has vertices A(4, 3), B(6, 3) and C(4, 5). It is rotated 90° clockwise about the origin and then reflected in the y-axis. Write down the final coordinates. **[5 marks]**



Answer _____

20 Describe the single transformation that maps A(1, 2) to A′(4, 2) and B(3, 2) to B′(6, 2). **[3 marks]**

Answer _____