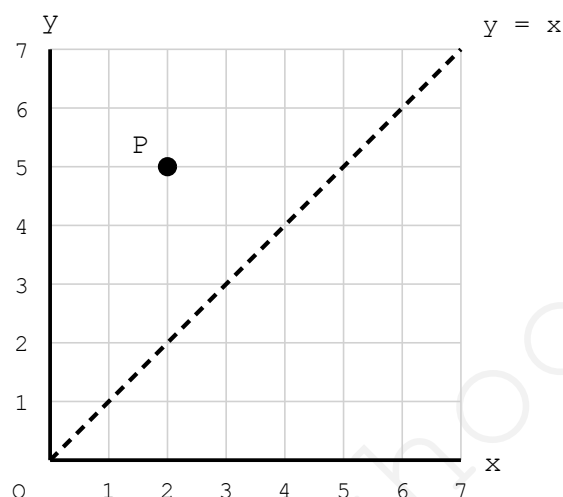


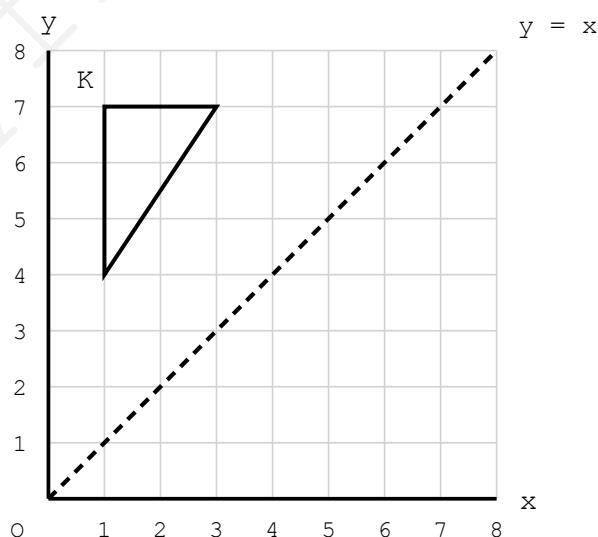
Coordinates & Graphs: Hard Practice Paper 3

Q1. Point P is reflected in the dashed line $y = x$. What are the coordinates of its image?



- A. (2, -5) B. (-2, 5) C. (5, 5) D. (2, 2) E. (5, 2)

Q2. The triangle is reflected in the dashed line $y = x$. What are the coordinates of the image of corner K?



- A. (1, 7) B. (7, 1) C. (4, 1) D. (7, 3) E. (3, 7)

Q3. The point $(3, 1)$ is rotated a quarter turn clockwise about the origin. Where does it land?

- A. $(1, 3)$ B. $(-1, 3)$ C. $(1, -3)$ D. $(-3, -1)$ E. $(3, -1)$

Q4. The point $(-2, 4)$ is rotated half a turn about the origin. Where does it land?

- A. $(2, 4)$ B. $(4, -2)$ C. $(-4, 2)$ D. $(2, -4)$ E. $(-2, -4)$

Q5. The point $(4, 2)$ is rotated a quarter turn anticlockwise about the origin. Where does it land?

- A. $(2, 4)$ B. $(2, -4)$ C. $(-4, 2)$ D. $(4, -2)$ E. $(-2, 4)$

Q6. Which single transformation takes the point $(1, 3)$ to the point $(-1, 3)$?

- A. A reflection in the x-axis
B. A reflection in the y-axis
C. A half turn about the origin
D. A reflection in the line $y = x$
E. A translation 3 left

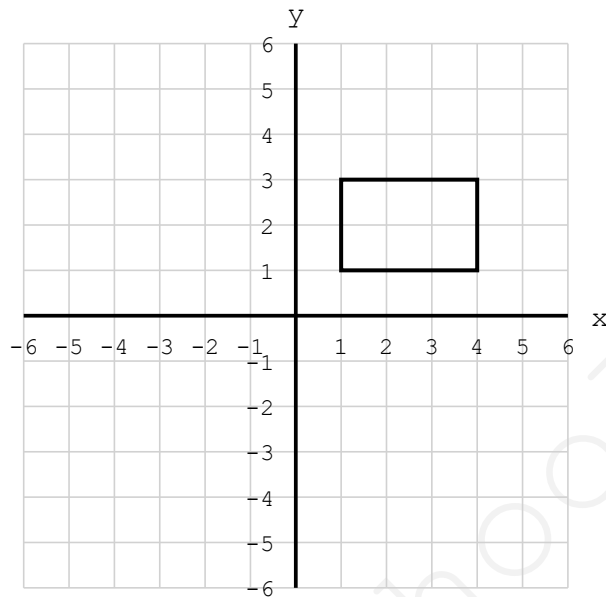
Q7. Which single transformation takes the point $(2, 3)$ to the point $(-2, -3)$?

- A. A reflection in the x-axis
B. A reflection in the y-axis
C. A half turn about the origin
D. A reflection in the line $y = x$
E. A translation 4 left and 3 down

Q8. The point $(5, -2)$ is reflected in the line $y = x$. What are the coordinates of its image?

- A. $(-5, 2)$ B. $(2, 5)$ C. $(-2, 5)$ D. $(2, -5)$ E. $(-5, -2)$

Q9. The shape is rotated half a turn about the origin. In which region does the image lie?



- A. Where x is positive and y is positive
- B. Where x is negative and y is positive
- C. Where x is positive and y is negative
- D. It stays exactly where it is
- E. Where x is negative and y is negative

Q10. A shape is translated 3 right and 2 up, and then translated 5 left and 6 down. What single translation would have the same effect?

- A. 2 left and 4 down
- B. 8 left and 8 down
- C. 2 right and 4 up
- D. 8 right and 4 down
- E. 2 left and 4 up

Q11. A point is reflected in the x-axis, and its image is then reflected in the x-axis again. What is the result?

- A. It ends up back where it started
- B. It ends up on the y-axis
- C. Both coordinates change sign
- D. It moves twice as far from the axis
- E. It ends up at the origin

Q12. Which point does not move when a shape is rotated about the origin?

- A. (1, 1) B. (0, 1) C. (1, 0) D. (0, 0) E. (-1, -1)

Q13. A square has corners at (0, 0), (4, 0), (4, 4) and (0, 4). Which transformation maps the square exactly onto itself?

- A. A reflection in the line $x = 2$
- B. A reflection in the x-axis
- C. A translation 4 squares right
- D. A quarter turn about the origin
- E. A reflection in the line $x = 4$

Q14. Triangle ABC has A at (2, 1). It is reflected in the y-axis and the image is then translated 3 squares down. Where is the image of A?

- A. (2, -2) B. (-2, 4) C. (-2, 2) D. (-2, -2) E. (-5, 1)

Q15. A shape is reflected in the line $y = x$. Which of these is always true of the image?

- A. It is the same size as the original
- B. It is bigger than the original
- C. It is turned upside down
- D. It always sits in the same place
- E. Its coordinates are all positive

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