18 Symmetry, Reflection and Rotation

Q1. Which letters in the word PRICK have no line of symmetry?

Answer: _____

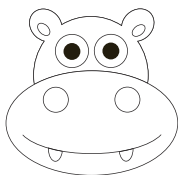**Q2.** Draw the line of symmetry in each of the following letters (if any):

A   H

Q3. Observe the following letters carefully. Find the lines of symmetry in each and classify them under suitable heading:
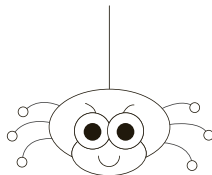
A, G, K, X, L, T, Y, C, U, F

No line of symmetry	One line of symmetry	Two lines of symmetry

Q4. Draw the line of symmetry for the following figures:

a.

b.

Q5. Name a quadrilateral having the following lines of symmetry :

a.   1   :   _____

b.   2   :   _____

c.   4   :   _____

Q6. Find the coordinates of the following points when reflected in the X-axis, Y-axis and origin and fill in the table below:

Co-ordinates of the point	Co-ordinates when reflected in the X-axis	Co-ordinates when reflected in the Y-axis	Co-ordinates when reflected in the origin
(2, 3)			
(1,–3)			
(–4,7)			
(–8,–1)			

Q7. A ΔPQR having vertices P (2, –3), Q (1, 2) and R (5,2), is reflected in the Y-axis to form a triangle P′Q′R′. Write the co-ordinates of the vertices P′Q′R′ in the space provided.
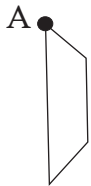
Answer:

Co-ordinates of P′   :   _____

Co-ordinates of Q′   :   _____

Co-ordinates of R′   :   _____

Q8. Draw the images of the following figure when rotated about the point A.

A

a.   180° anti-clockwise

b.   90° anti-clockwise

Q9. Draw two points A (1, 1) and B (2, 2). Join AB. Rotate AB (clockwise) about the origin through 180° to the position A′B′. Find the coordinates of A′ and B′. Find the length of both line segments AB and A'B' and tick the correct option:

    a.   AB is longer than A'B'

    b.   A'B' is longer than AB

    c.   AB and A'B' have same length

        Co-ordinates of A′   :   _____

        Co-ordinates of B′   :   _____

Q10. Draw ΔPQR with vertices P (1, 2), Q (2, 3) and R (1, 3). Rotate it (clockwise) about the origin through 180°. Write the coordinates of P′, Q′ and R′.
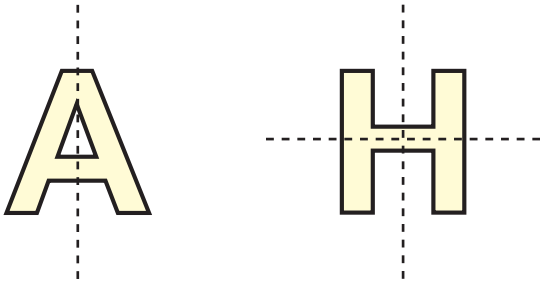
    Co-ordinates of P′   :   _____

    Co-ordinates of Q′   :   _____

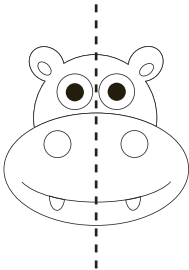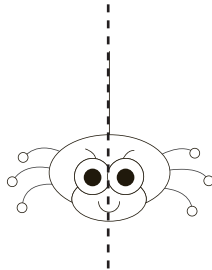   Co-ordinates of R′   :   _____

Answers

1. P, R

2.

3.

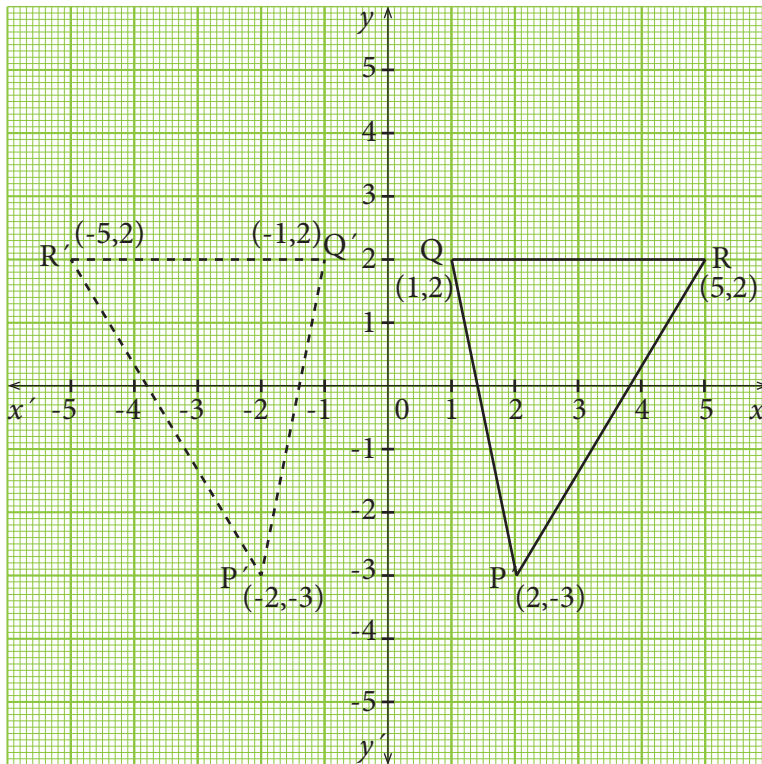| No line of symmetry	One line of symmetry	Two lines of symmetry
G	A	X
F	K	
L	T	
	Y	
	C	
	U	

4.

a. b.

5. a. kite; b. rectangle; c. square

6.

Co-ordinates of the point	Co-ordinates when reflected in the X-axis	Co-ordinates when reflected in the Y-axis	Co-ordinates when reflected in the origin
(2, 3)	(2, –3)	(–2, 3)	(–2, –3)
(1,–3)	(1, 3)	(–1, –3)	(–1, 3)
(–4,7)	(–4, –7)	(4, 7)	(4, –7)
(–8,–1)	(–8, 1)	(8, –1)	(8, 1)

7.
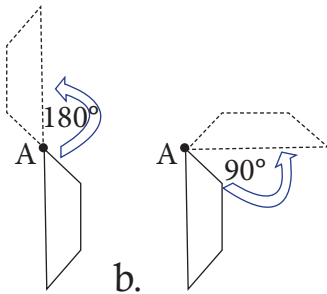

Co-ordinates of P′: (–2, –3)

Co-ordinates of Q′: (–1, 2)

Co–ordinates of R′: (–5, 2)

8. a.   b.
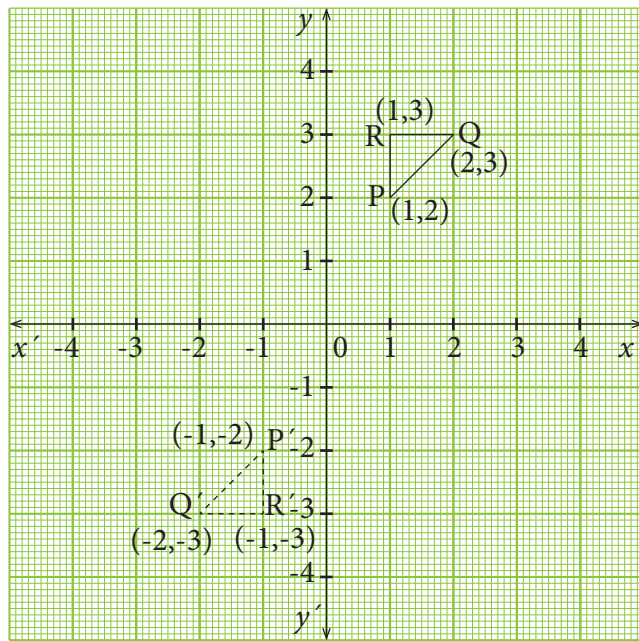

9.
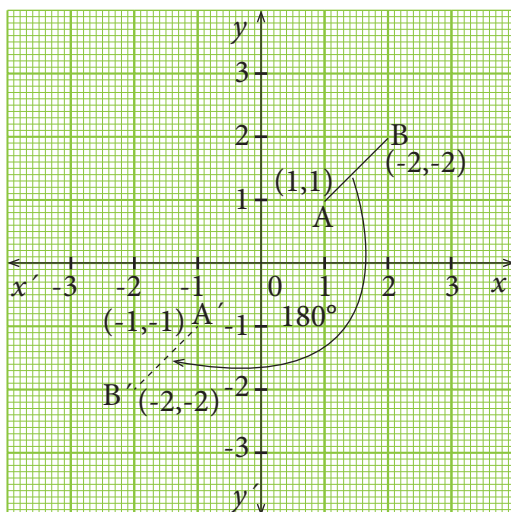
(c)

Co-ordinates of A′: (–1, –1); Co-ordinates of B′: (–2, –2)

10.

Co-ordinates of P′: (–1, –2)

Co-ordinates of Q′: (–2,–3)

Co-ordinates of R′: (–1, –3)