Unit 18 · Coordinate Geometry

HARDER PRACTICE QUESTIONS

Full marks 29

Write your answers on separate paper. Use squared paper for the plotting, with one square for one unit. Draw the X-axis and the Y-axis, and mark the origin O.

1 Where is each point? [3]

Without plotting, say in which quadrant or on which axis each point lies.

i. $A(-3, 5)$, $B(6, -2)$ and $C(-1, -1)$

ii. $D(0, -4)$ and $E(-7, 0)$

iii. A point whose x-coordinate is below zero and whose y-coordinate is above zero.

2 Spot the error [3]

Diksha was asked to plot $P(2, 5)$. She went 2 squares up from the origin and then 5 squares to the right.

i. What did she do wrong?

ii. Which point did she really plot?

iii. Is there a point whose two coordinates can be read in either order and still give the same place? Give two examples.

3 The fourth corner [4]

$A(-3, 4)$, $B(5, 4)$ and $C(5, -2)$ are three corners of the rectangle ABCD.

i. Plot them and find the fourth corner, D.

ii. How long are the sides AB and BC?

iii. Find the rectangle's perimeter.

iv. Find its area.

4 Join them up [3]

Plot $P(-4, 0)$, $Q(0, 3)$, $R(4, 0)$ and $S(0, -3)$, and join them in order, back to P.

i. Measure the four sides with a ruler. What shape is PQRS?

ii. Find its area by counting squares, or by taking the corners off the box round it.

5 Steps on the grid [3]

Milan stands at $(2, -3)$. He walks 5 units to the left, then 4 units up.

i. Where does he end?

ii. In which quadrant did he start, and in which does he end?

iii. From there, how far must he walk to the right or to the left to reach the Y-axis?

6 A pattern of points [3]

The points $(1, 2)$, $(2, 4)$, $(3, 6)$ and $(4, 8)$ are plotted.

i. What do you notice about them when you plot them?

ii. Write the next two points of the pattern.

iii. Is $(7, 14)$ in the pattern? Is $(9, 16)$? Give a reason.

7 Two corners of a square [3]

$(1, 1)$ and $(4, 1)$ are the two ends of one side of a square.

i. Find the other two corners. There are two answers: give both.

ii. Find the square's area.

8 Make your own [3]

On squared paper, draw a simple picture (a star, a boat, a fish…) made by joining points in order, with at least one corner in each quadrant. Write its corners as ordered pairs, in the order to join them, so that a friend could draw it without seeing yours.

9 Think: three and five [4]

A point is 3 units from the X-axis (above it or below it) and 5 units from the Y-axis (to its right or its left).

i. Find every point it could be.
ii. In which quadrant is each one?
iii. If the point is also below the X-axis and to the right of the Y-axis, which one is it?
iv. What shape do all the points from i make when joined in order? Find its area.