



KS3.M-G13 Coordinates and Line Geometry

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Look at the point $P(-3, 4)$. State which quadrant P lies in.

(1)

- 2** Write down the coordinates of each labelled point.

Figure (to be drawn): A 4-quadrant grid with points A , B , C and D plotted: A at $(2, 3)$, B at $(-4, 1)$, C at $(-1, -2)$, D at $(5, -3)$.

- (a) Point A

(1)

- (b) Point B

(1)

- (c) Point C

(1)

- (d) Point D

(1)

- 3** Reflect the point $R(4, -2)$ in the x -axis. Write down the coordinates of the image.

(1)

4 Reflect the point S(-5, 6) in the y-axis. Write down the coordinates of the image.

(1)

5 Find the midpoint of the line joining the points A(2, 5) and B(8, 1).

(2)

6 Find the midpoint of C(-3, -4) and D(1, 2).

(2)

7 Calculate the distance between the points that lie on the same horizontal or vertical line.

(a) Distance between E(3, 7) and F(3, -2).

(1)

(b) Distance between G(-6, 4) and H(2, 4).

(1)

8 Work out the gradient (slope) of each line joining the two points. Give answers as fractions or integers.

(a) Gradient of line through J(1, 2) and K(4, 11).

(2)

(b) Gradient of line through L(-2, 5) and M(4, 2).

(2)

- 9** A straight line passes through the points P(0, 3) and Q(2, 7). Work out the equation of the line in the form $y = mx + c$.

(3)

Mark scheme · KS3.M-G13 Coordinates and Line Geometry

Question 1

- **B1** Second quadrant cao (x negative, y positive)
- Answer: **Second quadrant**

Question 2

- (a) **B1** (2, 3) cao
- (a) Answer: **(2, 3)**
- (b) **B1** (-4, 1) cao
- (b) Answer: **(-4, 1)**
- (c) **B1** (-1, -2) cao
- (c) Answer: **(-1, -2)**
- (d) **B1** (5, -3) cao
- (d) Answer: **(5, -3)**

Question 3

- **B1** (4, 2) cao (reflecting in x-axis changes sign of y)
- Answer: **(4, 2)**

Question 4

- **B1** (5, 6) cao (reflecting in y-axis changes sign of x)
- Answer: **(5, 6)**

Question 5

- **M1** midpoint method used: $((2+8)/2, (5+1)/2)$ or equivalent
- **A1** (5, 3) cao
- Answer: **(5, 3)**

Question 6

- **M1** midpoint method used: $((-3+1)/2, (-4+2)/2)$ or equivalent
- **A1** (-1, -1) cao
- Answer: **(-1, -1)**

Question 7

- (a) **B1** 9 cao (difference in y: $7 - (-2) = 9$)
- (a) Answer: **9**
- (b) **B1** 8 cao (difference in x: $2 - (-6) = 8$)
- (b) Answer: **8**

Question 8

- (a) **M1** difference method shown: $(11 - 2)/(4 - 1)$ or equivalent
- (a) **A1** 3 cao
- (a) Answer: **3**
- (b) **M1** difference method shown: $(2 - 5)/(4 - (-2))$ or equivalent
- (b) **A1** $-1/2$ cao
- (b) Answer: **-1/2**

Question 9

- **M1** find gradient $m = (7 - 3)/(2 - 0)$ or equivalent
- **M1** substitute a point to find c, e.g. $3 = m \cdot 0 + c$ or use $y = mx + c$
- **A1** $y = 2x + 3$ cao
- Answer: **$y = 2x + 3$**