Coordinates and straight-line graphs

Name: _____ **Date:** _____



Mr Boston says: Make a table of values (x = −2 to 3) before drawing a line.

A. Midpoints and gradients

1 Midpoint of (−5, 0) and (−3, 4)

Answer: _____

2 Midpoint of (−4, 3) and (6, 7)

Answer: _____

3 Midpoint of (5, 4) and (15, 6)

Answer: _____

4 Gradient of the line through (2, −4) and (6, −12)

Answer: _____

5 Gradient of the line through (−3, −1) and (1, 3)

Answer: _____

6 Gradient of the line through (1, −2) and (2, 0)

Answer: _____

B. Tables of values

Then plot the points on squared paper and join them with a ruler.

7 Complete the table for y = 2x + 1.

x	−2	−1	0	1	2	3
y						

Answer: _____

8 Complete the table for y = 3 − x.

x	−2	−1	0	1	2	3
y						

Answer: _____

C. y = mx + c

9 Write down the gradient and y-intercept of y = 4x − 7.

Answer: _____

10 Write down the gradient and y-intercept of $y = -x + 2$.

Answer: _____

11 Does the point (3, 11) lie on $y = 3x + 2$? Show how you know.

Answer: _____

12 Write the equation of the line with gradient 5 that crosses the y-axis at (0, −1).

Answer: _____

Answers for grown-ups

Coordinates and straight-line graphs

1. Midpoint of (−5, 0) and (−3, 4) → **(−4, 2)**
2. Midpoint of (−4, 3) and (6, 7) → **(1, 5)**
3. Midpoint of (5, 4) and (15, 6) → **(10, 5)**
4. Gradient of the line through (2, −4) and (6, −12) → **−2**
5. Gradient of the line through (−3, −1) and (1, 3) → **1**
6. Gradient of the line through (1, −2) and (2, 0) → **2**
7. Complete the table for y = 2x + 1. → **−3, −1, 1, 3, 5, 7**
8. Complete the table for y = 3 − x. → **5, 4, 3, 2, 1, 0**
9. Write down the gradient and y-intercept of y = 4x − 7. → **gradient 4, y-intercept (0, −7)**
10. Write down the gradient and y-intercept of y = −x + 2. → **gradient −1, y-intercept (0, 2)**
11. Does the point (3, 11) lie on y = 3x + 2? Show how you know. → **Yes: 3 × 3 + 2 = 11**
12. Write the equation of the line with gradient 5 that crosses the y-axis at (0, −1). → **y = 5x − 1**