

Finding Gradients from Coordinates

Find the gradients of the straight lines through these pairs of points.

- (a) (0, 0) and (2, 8)
- (b) (0, 0) and (8, 2)
- (c) (3, 0) and (5, 6)
- (d) (3, 0) and (5, 5)
- (e) (0, 8) and (4, 0)
- (f) (1, 5) and (3, 1)
- (g) (1, 5) and (3, -1)
- (h) (3, 3) and (9, -3)
- (i) (2, 4) and (-2, 16)
- (j) (4, 4) and (-8, -2)

(a) A line with a gradient of 3 passes through the points (2, 6) and (4, a). Find the value of a .

(b) A line with gradient -2 passes through the points (5, 5) and (b , 9). Find the value of b .

(c) A line with gradient $\frac{1}{2}$ passes through the points (c , 8) and (-1, 5). Find the value of c .

(a) Find the gradient of the line joining the points (4, 5) and (6, 5). What is the equation of this line?

(b) Find the gradient of the line joining (9, -1) and (9, 5). What is the equation of this line?

Point A has coordinates (4, 6). Point B has coordinates (a , b). a is a positive integer less than four. b is a prime number less than 10. How many gradients for the line AB can you find?

(a) 4

(b) $\frac{1}{4}$

(c) 3

(d) $\frac{5}{2}$

(e) -2

(f) -2

(g) -3

(h) -1

(i) -3

(j) $\frac{1}{2}$

(a) $a = 12$

(b) $b = 3$

(c) $c = -7$

(a) gradient = 0
 $y = 5$

(b) gradient = undefined
 $x = 9$

Possible gradients:
 $\frac{4}{3}, 1, \frac{1}{3}, -\frac{1}{3}, 2, \frac{3}{2},$
 $\frac{1}{2}, -\frac{1}{2}, 4, 3, -1$