

2.1 Equation of a Straight Line

Question Paper

Course	Edexcel IAL Maths: Pure 1
Section	2. Coordinate Geometry
Topic	2.1 Equation of a Straight Line
Difficulty	Easy

Time allowed: 60

Score: /48

Percentage: /100

Question 1

The equation of a straight line is $y = 2x - 6$.

Write down:

- (i) the gradient of the line,
- (ii) the coordinates of the point where the line intercepts the y -axis,
- (iii) the coordinates of the point where the line intercepts the x -axis.

[3 marks]

Question 2

Find the coordinates of the midpoint of the straight line connecting the following points:

- (i) $(2, 4)$ and $(6, 10)$,
- (ii) $(-3, 6)$ and $(5, 9)$,
- (iii) $(0, -8)$ and $(3, 2)$.

[5 marks]

Question 3

Find the length of the straight line segments connecting the following points:

- (i) $(2, 4)$ and $(5, 8)$,
- (ii) $(3, -6)$ and $(-2, -14)$,
- (iii) $(5, -13)$ and $(2, -7)$.

[5 marks]**Question 4**

Find the equations of the following straight lines, given the gradient, m , and a point $P(x, y)$ that each line passes through.

Give your answers in the form $y = mx + c$.

- (i) $m = 2, P(3, 5)$,
- (ii) $m = -2, P(-1, 3)$,
- (iii) $m = \frac{1}{2}, P(5, -2)$.

[6 marks]

Question 5

Given that a straight line passes through the points $P(x_1, y_1)$ and $Q(x_2, y_2)$, work out the gradient of the following lines:

- (i) $P(2, 6), Q(4, 12)$,
- (ii) $P(-3, 4), Q(-8, 24)$,
- (iii) $P(1, -3), Q(-3, 6)$.

[6 marks]**Question 6**

Write the equations of the straight lines below in the form $ax + by + c = 0$, where a, b and c are integers.

- (i) $y = 3x - 5$,
- (ii) $y = \frac{1}{2}x + 7$,
- (iii) $\frac{1}{3}y = \frac{1}{6}x - \frac{1}{9}$.

[5 marks]

Question 7

- (i) Write down an equation of a straight line that is parallel to $y = 4x + 3$.
- (ii) Write down an equation of a straight line that is perpendicular to $y = 8x - 5$.

[3 marks]**Question 8**

The line L is parallel to the line with equation $2x + y - 3 = 0$, and passes through the point $(1, 1)$.

Find the equation of the line L .

[3 marks]**Question 9**

The line L is perpendicular to the line with equation $y - \frac{1}{3}x + \frac{2}{3} = 0$, and passes through the origin.

Find the equation of the line L .

[3 marks]

Question 10

A straight line passes through the points $(4, 8)$ and $(-4, 10)$.

- (i) Find the gradient of the straight line.
- (ii) Hence, or otherwise, find the equation of the straight line, giving your answer in the form $y = mx + c$.

[4 marks]

Question 11

A gardener is modelling the rate at which a shrub grows using the equation $h = 3t + 5$.
 h is the height of the shrub in centimetres t weeks after planting.

- (a) Write down the height of the shrub when it was first planted.

[1 mark]

Question 11

(b) Work out the height of the shrub after six weeks.

[2 marks]

Question 11

(c) How long should it take the shrub to reach a height of 29 cm?

[2 marks]