

**AQA, Edexcel, OCR, MEI**

**A Level**

# **A Level Mathematics**

**C1 Coordinate Geometry  
(Straight Lines)**

Name:

**M M E**

**Mathsmadeeasy.co.uk**

**Total Marks: /47**

1. Consider the linear function  $f(x)$  plotted below.

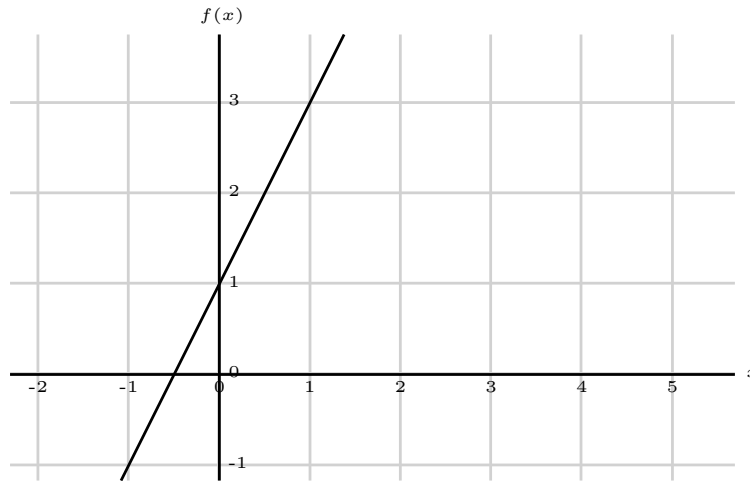


Figure 1: A plot of a linear function  $f(x)$ .

- (a) Give the equation of the line in the diagram above. [2]
2. You are given the line  $f(x) = 3x$ . Give the gradient of a straight line that is:
- (a) *Parallel* to  $f(x)$ . [1]
- (b) *Perpendicular* to  $f(x)$ . [1]
3. Calculate the distance between the following points:
- (a)  $(0, 0)$  and  $(0, 2)$ . [2]
- (b)  $(2, 1)$  and  $(3, 4)$ . [2]
- (c)  $(5, 1)$  and  $(-2, 3)$ . [2]
4. Calculate the midpoint between the following points:
- (a)  $(0, -2)$  and  $(0, 6)$ . [2]
- (b)  $(1, 2)$  and  $(5, 3)$ . [2]
- (c)  $(\pi, -\sqrt{2})$  and  $(10, \sqrt{2})$ . [2]

5. Sketch the following lines on separate axes, clearly indicating any intersections with the axes:

(a)  $y = 3x + 5$ . [2]

(b)  $y = \frac{1}{2}x - 2$ . [2]

(c)  $3y + x = 3$ . [2]

6. Give the equation of the line that:

(a) Passes through the origin and has a gradient of 2. [1]

(b) Passes through  $(-2, -1)$  and  $(3, 0)$ . [2]

(c) Passes through  $(-1, 0)$  and  $(\frac{4}{3}, 2)$ . [2]

(d) Is perpendicular to the line  $y = 3x + 2$  and passes through  $(2, 0)$ . [2]

(e) Passes through  $(0, 100)$  and has a gradient of zero. [1]

7. Find the points of intersection between the following lines:

(a)  $y = 2(x + 1)$  and  $y = 2$ . [2]

(b)  $y = 3x + 1$  and  $y = 2x - 3$ . [2]

(c)  $y = \frac{1}{3}x - 2$  and  $y = \frac{1}{2}x + 4$ . [2]

(d)  $3y + x = 0$  and  $y = \frac{5}{3}x - 1$ . [2]

8. Consider the two *perpendicular* linear functions  $f(x)$  and  $g(x)$  pictured in the figure below. You are given that the *distance* between the points  $(-4, 2)$  and  $(0, a)$  is 5:

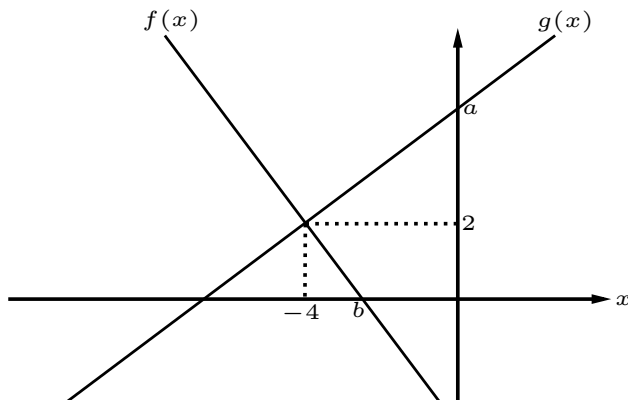


Figure 2: A plot of two linear functions  $f(x)$  and  $g(x)$ .

- (a) Work out the value of  $a$ . [2]
- (b) Hence show that  $g(x) = \frac{3}{4}x + 5$ . [3]
- (c) By finding the equation of  $f(x)$ , show that  $b = -\frac{5}{2}$ . [4]