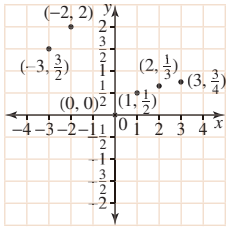
Going further

1

x	$^{-}3$	$^{-}2$	$^{-}1$	0	1	2	3
y	$\frac{3}{2}$	2	Undefined	0	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{4}$

2



3 Not linear

Extension

1 Yes, it would appear to be linear.

2 No, it is not linear.

3 To be absolutely certain that a relationship is linear, you need more than just a table of values.

EXERCISE 3B

1 The general shape formed from a linear equation is a straight line.

2 A

3 **a** (0, $^{-}2$) **b** (0, 1) **c** (0, 0)

4 **a** Positive **b** Positive
c Negative **d** Zero

5 **a** $m = \frac{1}{2}$ **b** $m = \frac{^{-}3}{2}$

6 **a** $m = 4$ **b** $m = ^{-}3$

7

	Rise	Run	Gradient
a	10 metres	4 metres	$\frac{5}{2}$
b	10 metres	2 metres	5
c	5 metres	10 metres	$\frac{1}{2}$

8 **a** **i** C **ii** B **iii** A
b Straight line y-intercept of (0, 2) with a slope of $\frac{^{-}1}{4}$.

9 **a** **i** (0, 1) **ii** (0, 12)
b **i** Straight line with a slope of $^{-}3$
ii Straight line with a slope of $^{-}2$

10 **a** $m = \frac{^{-}3}{2}$
b It does not matter which points are chosen to determine the gradient of the graph because the gradient will always remain the same.
c Straight line with a y-intercept of (0, $^{-}2$) and a slope of $\frac{^{-}3}{2}$

Going further

1 Red

2 $m = 2$, $m = 1$

3 The red graph has the greatest slope, which means for every increase in x, there are two increases in y.

Extension

1 Answers will vary.

2 Answers will vary.

3 Answers will vary.

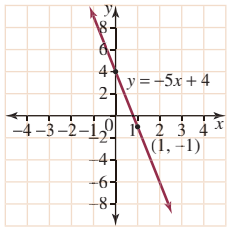
4 By moving the first point closer to the second point

EXERCISE 3C

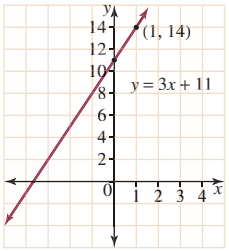
1 **a** $y = mx + c$
b m is the gradient of the graph and c is the y-intercept.

2 **a** $m = ^{-}5$, $c = 4$ **b** $m = 3$, $c = 11$ **c** $m = ^{-}6$, $c = 0$
d $m = \frac{5}{2}$, $c = 5$ **e** $m = \frac{2}{3}$, $c = ^{-}6$ **f** $m = 2$, $c = ^{-}1$

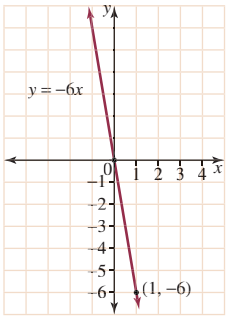
3 **a**



b



c



d