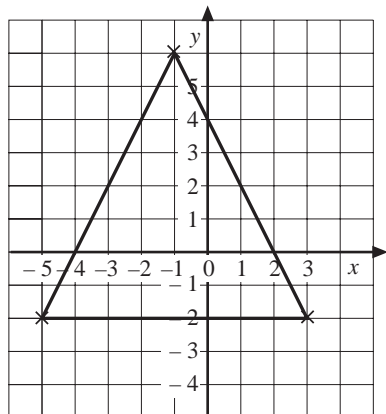## Practice Book   *UNIT 14   Straight Line Graphs*   Answers

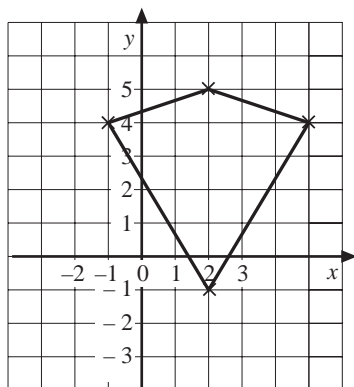## 14.1 Coordinates

1.   A (4, 8) ;   B (5, – 3) ;   C (3, – 7) ;   D (– 5, – 2) ;   E (– 2, 5) ;   F (7, 4) ;

  G (3, – 2) ;   H (– 3, – 6) ;   I (– 6, – 5) ;   J (– 5, 2) ;   K (– 5, 8)

2.   (a), (b)   (c)   isosceles

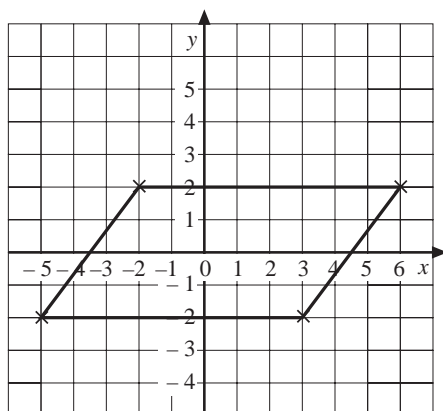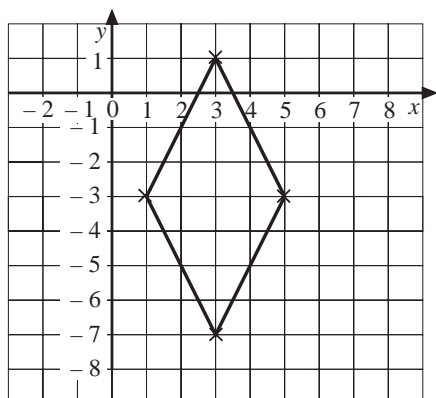3.   (a), (b)   (c)   kite

4.   (– 1, – 3)

5.   (– 1, – 5)

6.   (a)   (b)   parallelogram

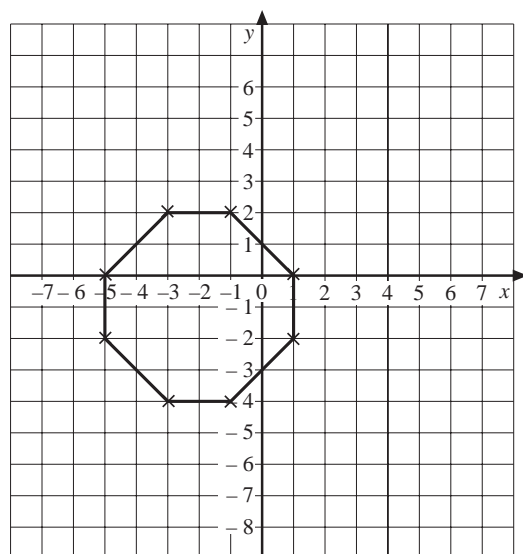## 14.1   Answers
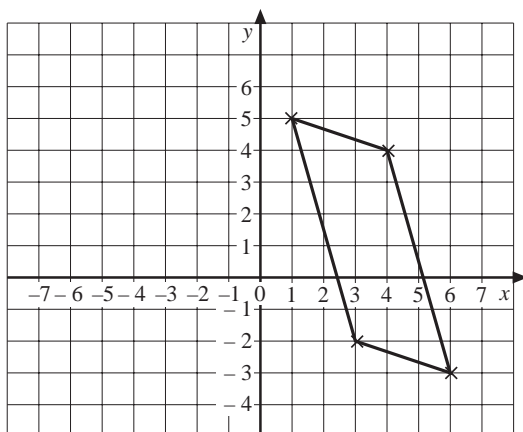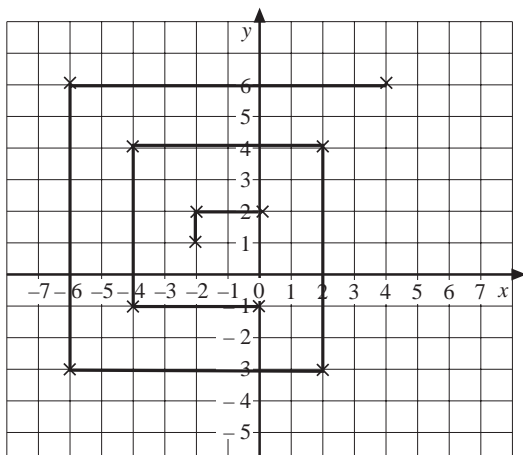
7. (a)

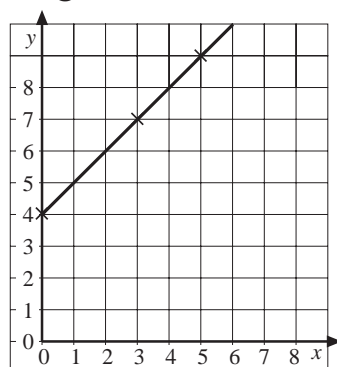(b) rhombus

8. (a)

(b) regular octagon

9. (a)

(b) $(3, -2)$

14.1

Answers

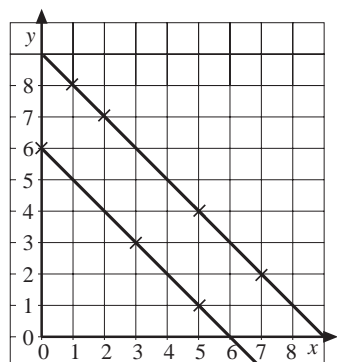10. (a)

(b) $(-6, -3)$, $(-6, 6)$, $(4, 6)$

14.2 Plotting Points on Straight Lines
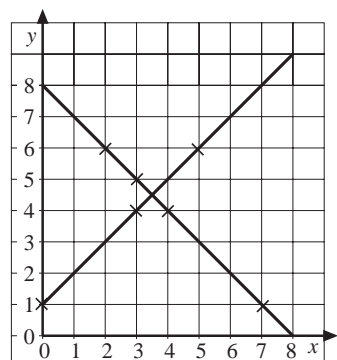
1.   (a), (b)

(c) $(2, 6)$, $(4, 8)$, $(6, 10)$

2.   (a), (b)
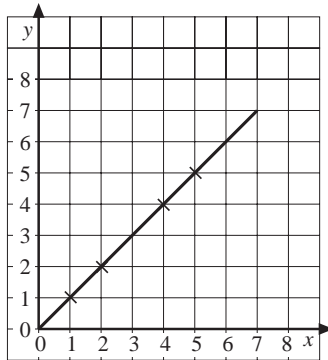

(c)   These two lines are parallel.

3.   (a), (b)

(c)   These two lines are perpendicular.
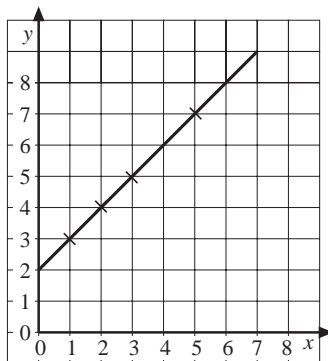
14.2

Answers

4. (a)

(b)   For example, (0, 0), (3, 3)

(c)   The *y*-coordinate is the same as (equals) the *x*-coordinate, i.e. $y = x$.
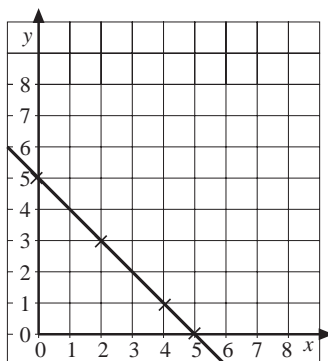
5. (a)

(b)   For example, (0, 2), (4, 6), (6, 8)

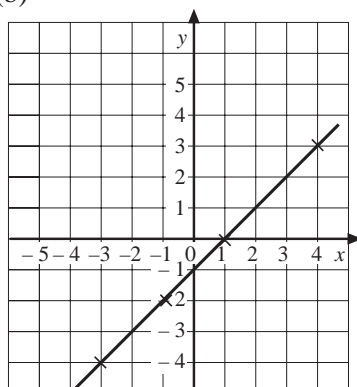(c)   The *y*-coordinate is always 2 more than the *x*-coordinate, i.e. $y = x + 2$.

6. (a)
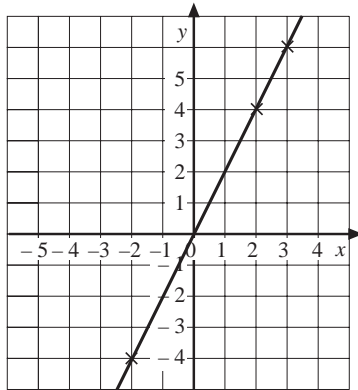

(b)   For example, (1, 4), (3, 2)

(c)   5

7. (a), (b)

(c)   The *y*-coordinate is always one less than the *x*-coordinate, i.e. $y = x - 1$.
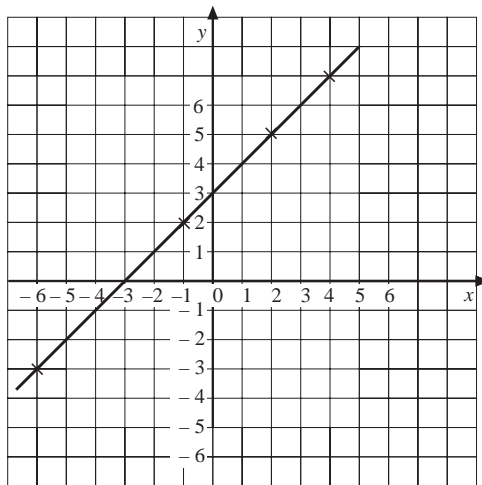
14.2

Answers

8. (a)

(b) The y-coordinate is always twice the x-coordinate,
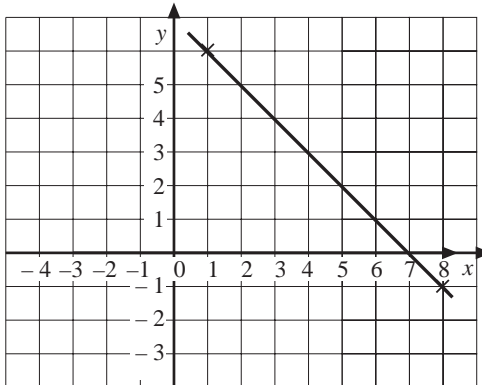
i.e. $y = 2x$.

9. (a)

(b) $(-7, -4)$, $(-4, -1)$, $(3, 6)$, $(1, 4)$, $(100, \ 103)$

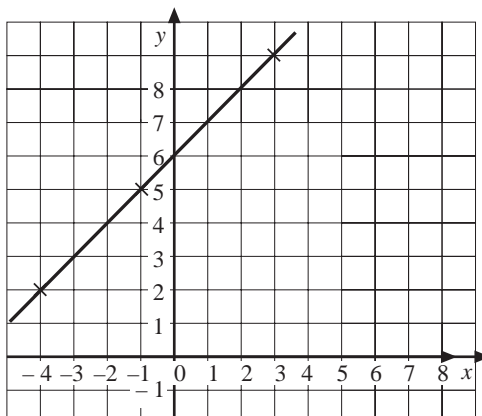(c) The y-coordinate is always 3 more than the x-coordinate, i.e. $y = x + 3$.

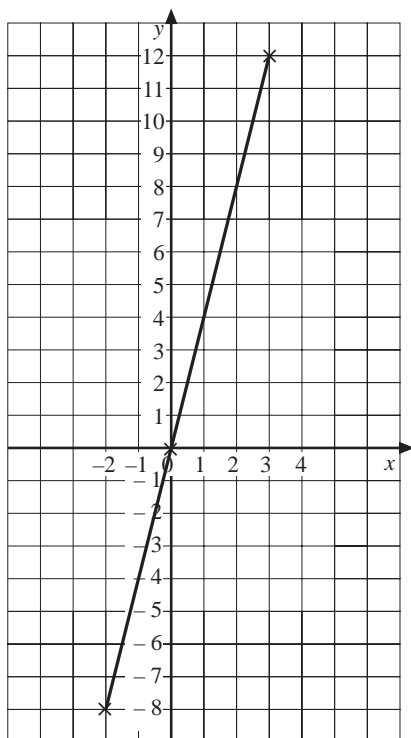(d) No. 27 is only 2 more than 25.

10. (a)

$x + y = 7$

(b)

$y = x + 6$

14.2

Answers
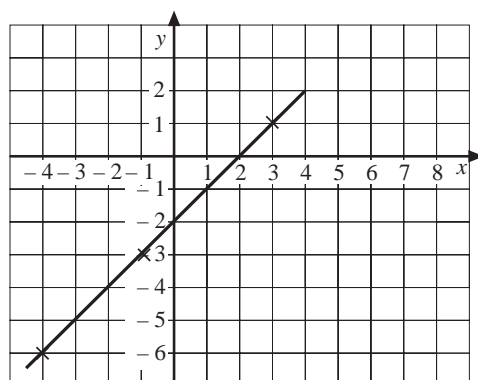
10. (c)

$y = 4x$

(d)

$y = x - 2$

14.3 Plotting Graphs Given Their Equations

1. Positive: A, C, F   Negative: B, D, E

2. (a) 4   (b) 1   (c) 5   (d) 2

   (e) $1\frac{1}{2}$ (f) 1   (g) $2\frac{1}{2}$ (h) 0
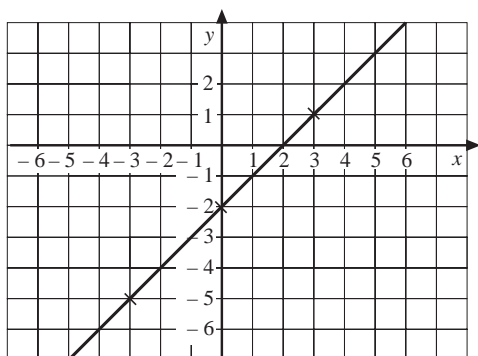
3. (a) -1 (b) -4 (c) -3 (d) -2

4. (a)

x	-3	-2	-1	0	1	2	3
y	-5	-4	-3	-2	-1	0	1

14.3

Answers

(b)

$y = x - 2$

5. (a)

x	-3	-2	-1	0	1	2	3
y	-3	-1	1	3	5	7	9

(b)
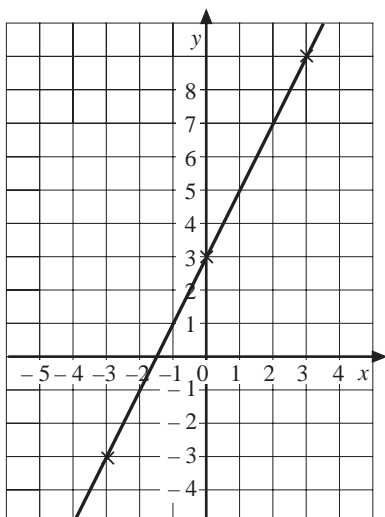
$y = 2x + 3$

6. (a)
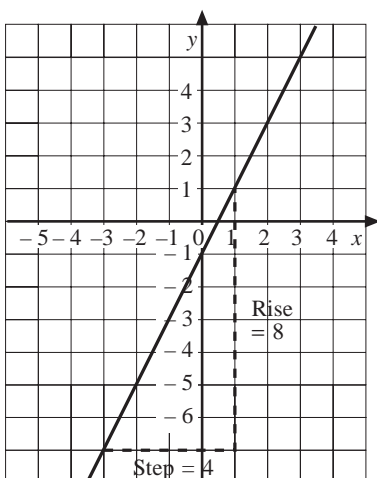
Rise = 8

Step = 4

(b) Gradient $= \dfrac{8}{4}$

$= 2$

14.3

Answers

7. (a)
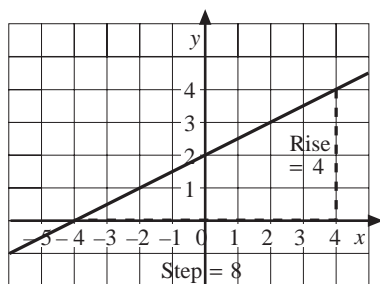
(b) Gradient $= \dfrac{4}{8}$

$\phantom{\text{Gradient }} = \dfrac{1}{2}$

8. (a)
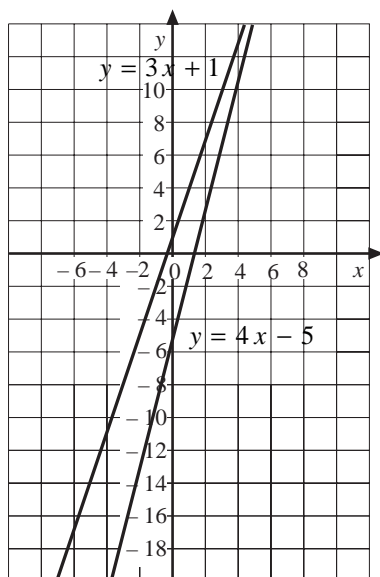
(b) $y = 3x + 1$ Gradient $= 3$

$ y = 4x - 5$ Gradient $= 4$

9. (a) 2   (b) 3   (c) 10   (d) 5

10. (a)
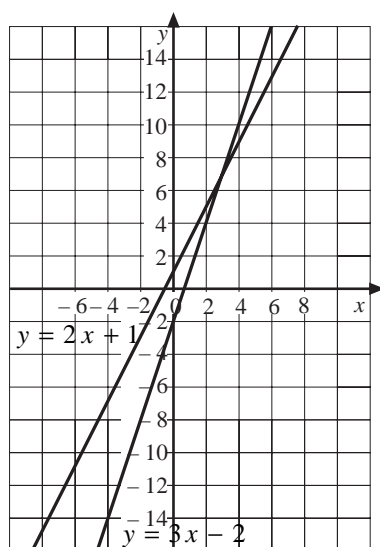
(b) $(3, 7)$

14.3

Answers

11.
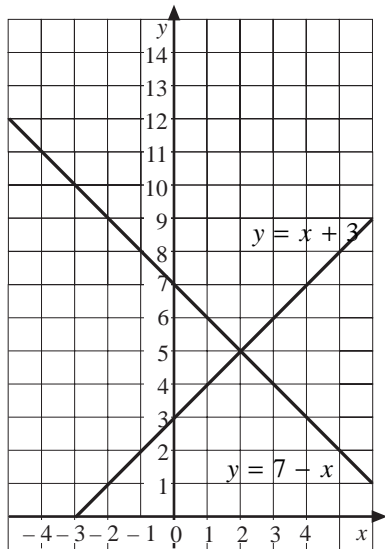
Coordinates of intersection = (2, 5)

12. (a)

(b) Gradient $= \dfrac{-12}{6}$

$= -2$
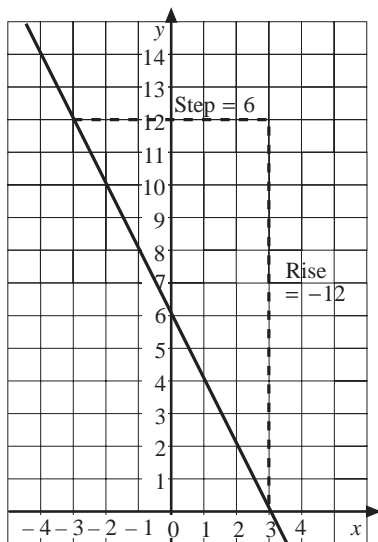
13. (a) Both lines have gradient $= -2$.

(b) For example, $y = 7 - 2x$.

(c) See diagram
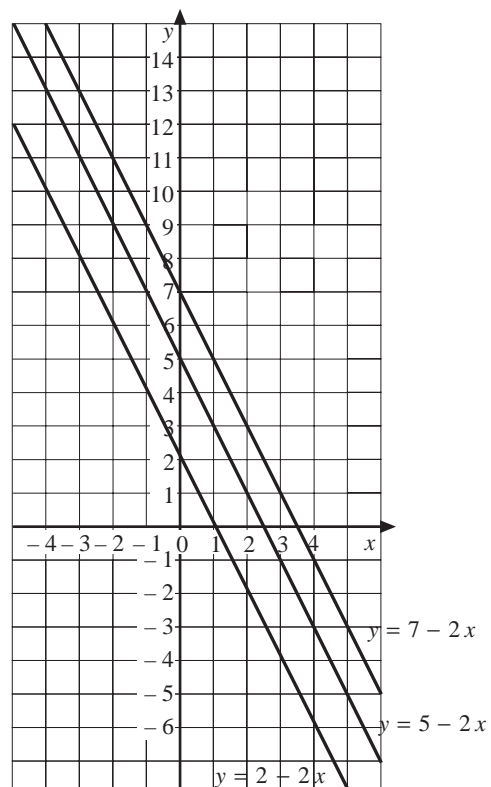
Answers

14.4 The Equation of a Straight Line

1. (a)

(b) Gradient $= \dfrac{12}{6}$

$\quad\quad\quad\quad\quad = 2$
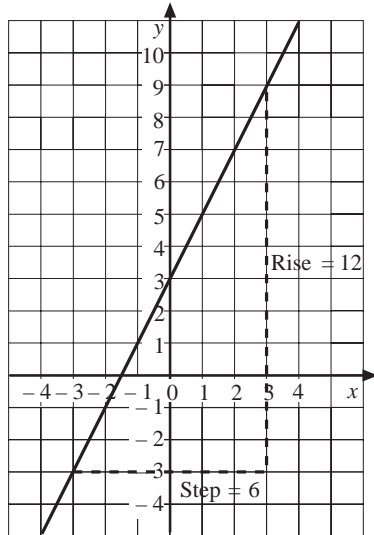
(c) Intercept $= 3$

2. (a)
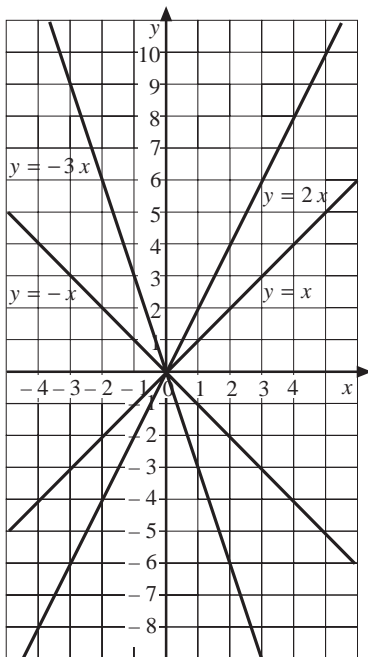
(b) Gradients $= 1, \ -1, \ 2, \ -3$

(c) $y = 0$

3. (a)
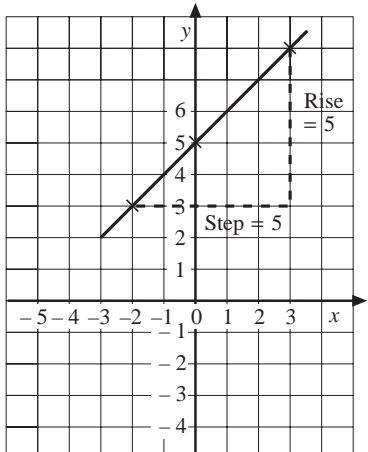
(b) Gradient $= \dfrac{\text{Rise}}{\text{Step}}$

$\quad\quad\quad\quad = 1$

(c) $y = 5$

(d) $y = x + 5$

14.4   Answers

4.

	m	c	$y = mx + c$
(a)	1	-3	$y = x - 3$
(b)	2	2	$y = 2x + 2$
(c)	-1	4	$y = -x + 4$ or $y = 4 - x$
(d)	-3	2	$y = -3x + 2$ or $y = 2 - 3x$

5.

Equation	Gradient	Intercept
$y = 2x + 7$	2	7
$y = 8x - 2$	8	-2
$y = 8 - 3x$	-3	8
$y = 7x - 5$	7	-5
$y = -3x + 2$	-3	2
$y = -5x - 2$	-5	-2

6. (a)
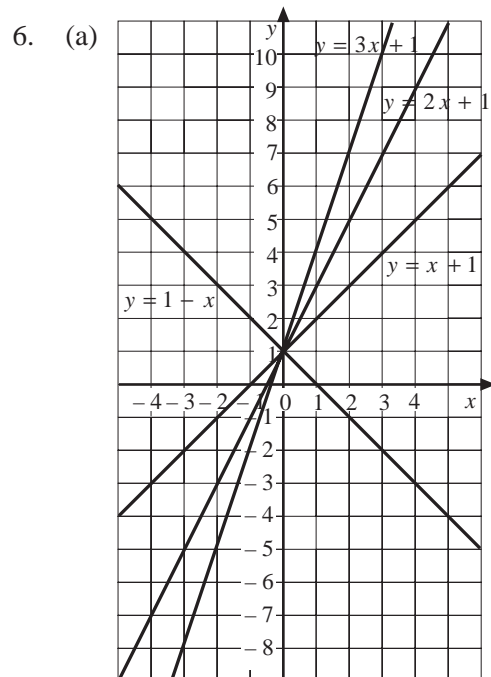
(b)   All lines pass through $y = 1$ since $c = 1$ in each equation (same intercept).

7. (a) Gradient $= \dfrac{15}{5} = 3$ (b) $y = 0$ (c) $y = 3x$
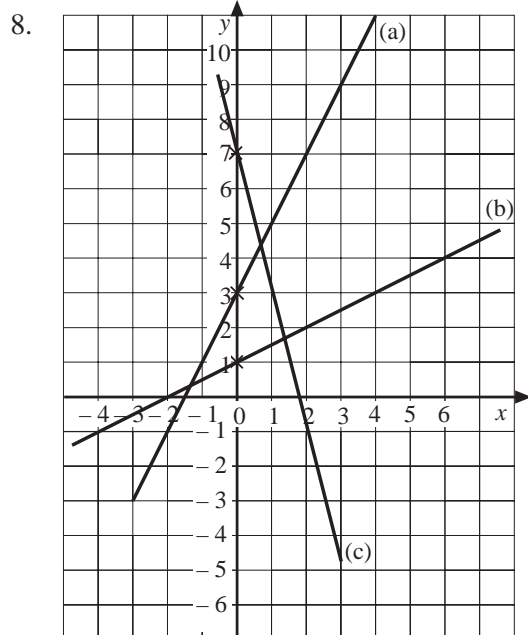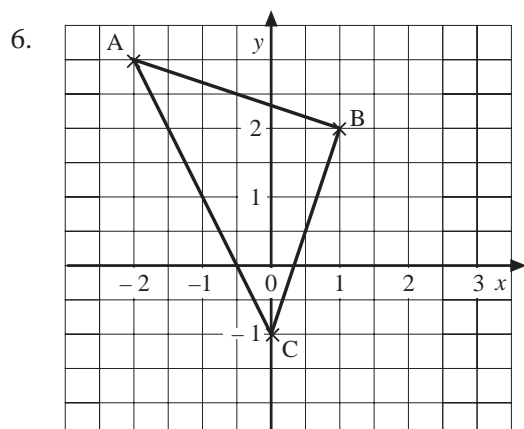
14.4

Answers

8.

14.5 The Equation of a Line Given Two Points

1. (a) Gradient $= \dfrac{6}{3} = 2$ (b) $y = 2x - 1$

2. $y = 7x$

3. Since $c = 0$ (intercept $y = 0$)

4. (a) $y = 3x + 1$ (b) $y = 3x + 11$ (c) $y = -2x + 100$ or $y = 100 - 2x$

    (d) $y = -3x + 6$ or $y = 6 - 3x$ (e) $y = 2x + 8$ (f) $y = -\dfrac{7}{4}x - \dfrac{25}{2}$
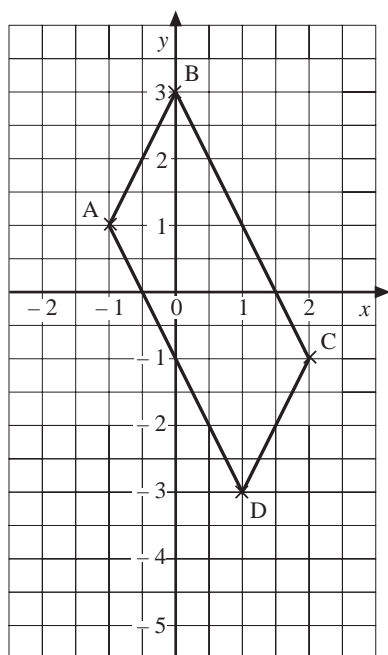
5. $y = -4x + 27$

6.

Line	Gradient	Intercept	Equation
A B	$-\dfrac{1}{3}$	$\dfrac{7}{3}$	$y = -\dfrac{1}{3}x + \dfrac{7}{3}$
B C	3	-1	$y = 3x - 1$
A C	-2	-1	$y = -2x - 1$

14.5

Answers

7.

Line	Gradient	Intercept	Equation
A B	2	3	$y = 2x + 3$
B C	-2	3	$y = -2x + 3$
C D	2	-5	$y = 2x - 5$
A D	-2	-1	$y = -2x - 1$