

Check out

- 1 a 6 b $6\frac{1}{4}$ c $2\frac{1}{5}$ d $1\frac{40}{81}$
 e $1\frac{3}{32}$
- 2 a $41\frac{1}{2}$ b $5\frac{3}{4}$ c 45 d 78
 e $7\frac{2}{5}$
- 3 a 0.3 b 0.78 c 0.02
- 4 $\frac{8}{18}, \frac{5}{12}, \frac{25}{3}, \frac{31}{56}$

Chapter 8**Check in**

- 1 a < b > c < d >
 e < then \leq
- 2 a $m+2t$ b $5x-5y$
 c $-2p+11+4v$ d $-2f-4g-8$
- 3 a i $15p-6$ ii $-24+18x$
 iii x^2+5x iv $15p^2-12p$
 b i $52p-36m$ ii $30+30T$
- 4 a Equation b Expression
 c Expression d Formula/function
- 5 a $x = \frac{y-1}{2}$ b $x = \frac{2y-5}{3}$

Exercise 8A

- 1 a $x=8$ b $x=-1$
- 2 a $x=3$ b $x=3$
- 3 a $x=6$ b $x=24$ c $x=-27$
- 4 a $p=5$ b $x=9$
- 5 a $d=2$ b $x=72$
- 6 a $x=4$ b $x=4$
- 7 a $x=3$ b $x=2$ c $n=12$
- 8 a $x=5$ b $y=2$
- 9 a $y=1$ b $x=3$
- 10 a $4(x+3)=32$ b $x=5$
- 11 a $x+x+2+x+4=6x$ b $2=x$, sides are 2, 4 and 6 cm
- 12 a $2y+8=32$ b 12 cm
- 13 a $x+20$ b $2x+20$ c 55
- 14 a $2x+19$ cm b 5.5
- 15 5 cm and 9 cm
- 16 9 years old and 12 years old
- 17 23, 24 and 25
- 18 21, 23 and 25
- 19 112 and 114
- 20 a Let x = cost of a child's ticket. Then $2x$ = the cost of an adult ticket.
 Mr and Mrs Brown + 5 children:
 $2x + 2x + 5x = 315$, or $9x = 315$
 b Child's ticket = 35 cents; adult's ticket = 70 cents
- 21 $2000 - 5t = 75$, $t = 385$ (Thus, the cost of each ticket is \$3.85)
- 22 $2(3n+7) = 80$, $n = 11$
- 23 $50x - 900 = 900$, therefore $x = 36$

Exercise 8B

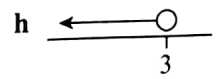
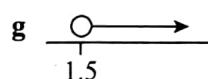
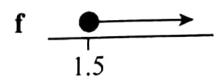
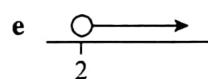
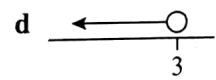
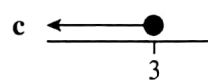
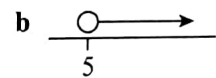
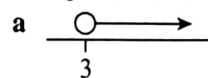
- 1 a 2 b 10 c 0.5 d 2.5
- 2 Enri forgot the brackets. This is the correct working and solution:
 $2 = \frac{22}{x+4}$ [multiply by $x+4$]
 $2(x+4) = 22$ [divide by 2]
 $x+4 = 11$ [subtract 4]
 $x = 7$
- 3 a 4 b 7 c 5 d 13
 e 4 f 17
- 4 $\frac{570}{x+7} = 15$, so $x = 31$
- 5 18
- 6 a $\frac{145}{x-8} = 5$
 b 37
- 7 a 14 b 25
- 8 a -2 b -1
- 9 a 7 b 1.3

Exercise 8C

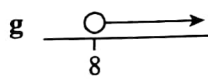
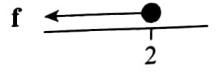
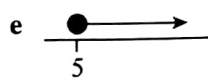
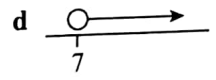
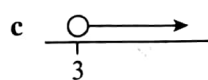
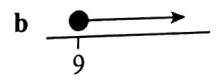
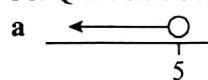
- 1 a $x > 3$ b $x > 5$ c $x \leq 3$ d $x < 3$
 e $x > 2$ f $x \geq 1.5$ g $x > 1.5$ h $x < 3$
- 2 a $x < 5$ b $x \geq 9$ c $x > 3$ d $x > 7$
 e $x \geq 3$ f $x \leq 2$ g $x > 8$
- 3 $3 \times 10 - 5 = 25$
 $2 \times 10 + 7 = 27$
 $25 \neq 27$
- 4 a She has forgotten to reverse the inequality sign when dividing by a negative number.
 b $5 - 2 \times -4 = 5 + 8 = 13$ which is greater than 11
- 5 a $x \leq 6$ b $x > -6$
- 6 $20 + 0.5d \geq 55$
- 7 a yes b yes c yes d no
- 8 a $x < -2$ b $x \geq 5$ c $x \leq -4$ d $x > -6$ e $x \leq -3$
- 9 a $x \leq 3$ b $x > 5$ c $x \geq 2$ d $x \leq 6.5$ e $x < 10$
- 10 $x < 7$

Exercise 8D

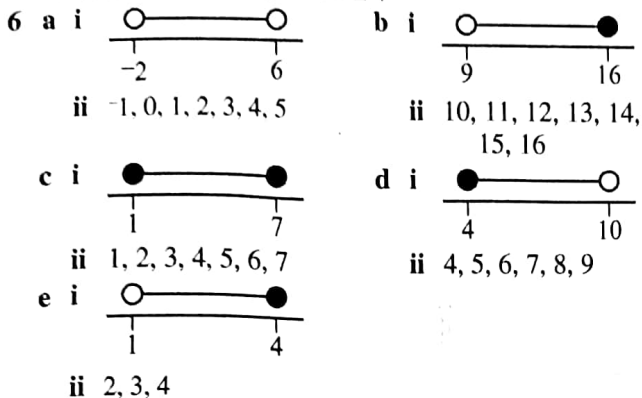
1 For Question 1 of Exercise 8C:



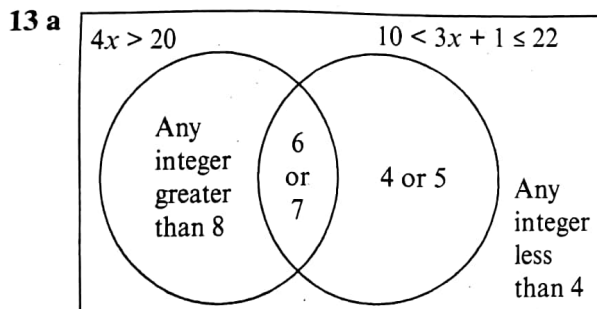
For Question 2 of Exercise 8C:



- 2 a 5, 6, 7, 8, 9 b 1, 2 c 6, 7, 8, 9
 d 1, 2, 3 e 7, 8, 9 f 1, 2, 3, 4
 3 a 16, 17, 18, 19, 20 b 18, 19, 20
 d 1, 2, 3, 4, 5 e 1, 2, 3 f 15, 16, 17, 18, 19, 20
 4 a $x < 2$ b $x \geq -2$ c $-1 < x < 2$
 d $-5 \leq x < 10$ e $0 \leq x \leq 30$
 5 a $-2 < x < 6$ b $9 < x \leq 16$ c $1 \leq x \leq 7$
 d $4 \leq x < 10$ e $1 < x \leq 4$



- 7 a 24, 25 b 21, 22, 23 c 22, 23, 24, 25
 8 a 5, 6, 7 b 6, 7
 9 a 10, 11, 12 b 4, 5, 6
 10 length must be greater than 8 cm
 11 width must be greater than 15 cm
 12 Amy is younger than 9



b Students' own answers

14 Students' own answers

- 15 a $2 \leq x < 6$ b $-1 \leq x < 3$ c $-3 < x \leq 9$

Exercise 8E

- 1 Only graph B could be that of $y = 3x - 4$
 2 a $y = 3x + 5$ b $y = 2x - 3$
 c $y = 7 - x$ d $y = -1 - 2x$
 3 a y-intercept = 3, gradient = 2
 b y-intercept = -2, gradient = 3
 c y-intercept = $\frac{1}{3}$, gradient = $\frac{4}{3}$
 d y-intercept = 4, gradient = -2
 e y-intercept = $\frac{1}{3}$, gradient = $-\frac{1}{2}$
 f y-intercept = $-\frac{5}{2}$, gradient = 2

- g y-intercept = 14, gradient = -6
 h y-intercept = $\frac{8}{3}$, gradient = $-\frac{1}{6}$

4 b, c and e

5 a and c, b and f

- 6 a $y = 2x$ b $y = 2x + 1$ c $y = 2x + 5$
 d $y = 2x - 3$ e $y = 2x + \frac{3}{2}$
 7 a $y = 3x + 2$ b $y = 5x + 2$ c $y = \frac{x}{2} + 2$
 d $y = -2x + 2$ e $y = 2$
 8 a $y = 3x + 5$ b $y = 4x - 2$ c $y = x + 1$
 9 a 2 b $\frac{1}{2}$ c 2 d 2
 e $\frac{1}{2}$ f -2

10 a a and d, b and e, c and f

b c and f

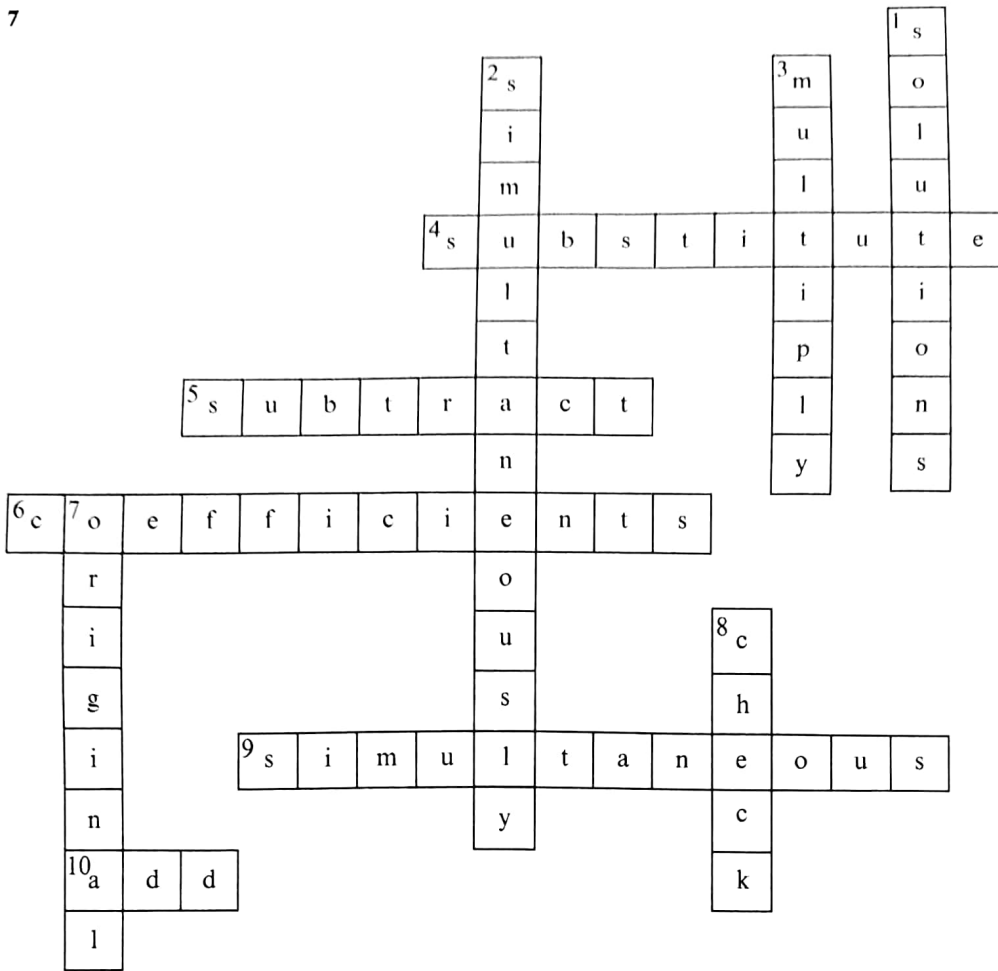
- 11 a $y = 3x + 2$ b $y = 2x + 4$ c $y = 4x - 1$
 d $y = 4x - 3$

Exercise 8F

- 1 a $x = 1, y = 1$ b $x = 2, y = 1$ c $c = 1, d = 1$
 d $x = 3, y = 1$ e $x = 3, y = 5$ f $a = 8, b = 2$
 2 a $x = 1, y = 1$ b $x = 1, y = 1$ c $x = 1, y = 3$
 d $a = 1, b = 1$ e $x = 4, y = 1$ f $m = 5, g = -2$
 3 $x = 7, y = 8$
 4 a $6x + 3y = 60$ (result of $[1] - [2]$) or $-6x - 3y = -60$ (result of $[2] - [1]$)
 b $x = 5, y = 10$
 5 When the coefficients of the variable you are eliminating are the same sign, you subtract; when the coefficients of the variable you are eliminating are the opposite sign, you add.
 6 Small 250 ml, large 400 ml
 7 Both are about the same level of difficulty, with adding being just slightly easier.
 8 In Greg's method, all the values end up positive for the resulting equation.
 9 12 and 7

Exercise 8G

- 1 a $x = 4, y = 1$ b $x = 1, y = 1$
 c $x = 3.8, y = 1.6$ d $x = 2, y = 2$
 2 a $x = 1, y = 1$ b $x = 1, y = 1$ c $x = 5, y = 2$
 d $x = 1, y = 2$ e $x = 1, y = -1$ f $x = 2, y = 2$
 g $x = 0.5, y = 1.5$
 3, 4 Students' own answers
 5 12 children and 4 sheep
 6 15 bottles of still and 8 bottles of sparkling



8 21 cm^2

Investigation

● = 5 ○ = 3 ◆ = 7

So the second row totals 20

Exercise 8H

- 1 a $x=4, y=1$ b $x=1, y=1$ c $x=1, y=-1$
 d $x=1, y=3$
- 2 a $x=2, y=1$ b $x=3, y=3$
- 3 a-d Students' own answers

Consolidation

Exercise 8

- 1 a $x=15$ b $x=12$ c $x=13$ d $x=4$
 e $x=5$ f $x=40$ g $x=12$
- 2 a $\frac{266}{x+10} = 7$ is correct b $x=28$
- 3 a $x < 2$ b $x > 4$ c $x < 12$ d $x < 7$
 e $x \geq 3$ f $x < 3$ g $x > 0.5$ h $x \leq 6$
 i $x < 2$
- 4 a $x=7, y=3$ b $x=2.5, y=-3.5$
 c $x=8, y=3$ d $x=1, y=0.5$
 e $x=1, y=-1$ f $x=1, y=1$
- 5 a $x \geq 11$ b $x < 12$ c $x < 4$ d $x > 4$
 e $f < 2.5$ f $y \leq 2$ g $t > 4$
- 6 a $80w+150 \leq 500$ b 4 c \$30
- 7 a $x=9, y=2$ b $r=6, t=-1$
- 8 $e=23.5, n=18$
- 9 a \$30 b \$20

- 10 a 1 b $\frac{3}{2}$ c $\frac{4}{5}$ d $-\frac{3}{5}$ e $-\frac{1}{2}$

11 Not a linear graph	A linear graph with a positive gradient	A linear graph with a negative gradient
$7y \times 3x = -2$	$7y - 3x - 2 = 0$	$7y + 3x = 2$

12 $b = 17, a = 15$, so the cost of 7 bananas and 8 apples = \$2.39

- 13 a $y=2x+3$ b $y=-x+5$ c $y=3x-6$

Check out

- 1 a 2 b 3 c 11
- 2 a $x < 3$ b $x > 4$ c $x \leq 0.5$ d $x \geq 3$
- 3 a $\frac{4}{3}$ b $-\frac{3}{2}$ c 3
- 4 a $y = \frac{3}{2}x - 1$ b $y = x + 1$
- 5 a $x=2, y=1$ b $x=3, y=1$
 c $x=-1, y=2$ d $x=-18, y=-15$
- 6 a $x=5, y=1$ b $m=9, p=-3$

Chapter 9

Check in

- 1 a 52° b 45° c 131°
- 2 a 24° b 40° c 68°
- 3 a 60° b 50°