

Pages 28–29 Number patterns

- 1** 29
- 2** Add 4 each time
- 3** 1, 3, 6, 10, 15, ... and 5, 7, 10, 14, 19, ...
- 4** -5
- 5** 2, 5, 11, ... and -3, -5, -9, ...
- 6** 1, 3, 5, ... (1 mark for first 2 correct)
- 7** **a** 1 **b** $3n$
- 8** $3n + 1$ (1 mark for $3n$)
- 9** 7
- 10** $4n + 4$ (1 mark for $4n$)

Pages 30–31 Multiples, factors, square numbers and primes

- 1** 7, 14, 21
- 2** n^2
- 3** False, it could equal -8; False, square numbers have an even number; True; True; True; False, 2 is a prime number.
- 4** 1, 2, 3, 4, 6, 8, 12, 24 (1 mark for 6 correct)
- 5** 8
- 6** 36
- 7** 36
- 8** 121 or 144
- 9** **a** 1, 4, 9
b 2, 3, 5, 7 (1 mark for 2 correct)
c 1, 2, 5, 10 (1 mark for 3 correct)
- 10** 6, 12, 18 (1 mark for 2 correct)
- 11** 1, 2, 4 (1 mark for 2 correct)

Pages 32–33 Basic algebra

- 1** $8a^2$
2 $2a + 15$
3 13
4 $3a$
5 $6n + 5m - m - 3n$ and $2m + 2m + 2n + n$
6 $a(b + c)$, $ab + ac$ and $c^2 + 2$
7 $n \times 2$ and $12n \div 6$
8 **a** $3a + 5b$ **b** $15a^2$
9 **a** $n + 7$ **b** $n + 2$ **c** 6
10 **a** $= 5x + 3$ **b** $= 2y + 2$

Pages 34–35 Formulae

- 1** **a** £6 **b** 4 hours
2 Add 12, Multiply by 5 and Multiply by 6 and subtract 3.
3 **a** £38 **b** 2.5 feet
4 **a** Input 5, output 17 and Input 1, output 5
5 2.5
6 **a** 23 **b** 0.5
7 $3(x - 2)$
8 **a** £16 **b** £40

Pages 36–37 Coordinates

- 1** A(1, 2), B(3, -2), C(-4, -2), D(-3, 4)
2 $y + x = -3$
3 **a** (-2, -1) **b** (1, 2)
4 (-1, 4) and $(2\frac{1}{2}, 7\frac{1}{2})$
5 **a** (-3, -2) **b** (-2, -3)
6 **a** (7, 7) **b** (6, 7) **c** (21, 21) **d** (20, 21)

Pages 38–39 Drawing graphs

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

2 $y = 5$

3 $(0, 8)$, $(-2, 10)$ and $(10, -2)$

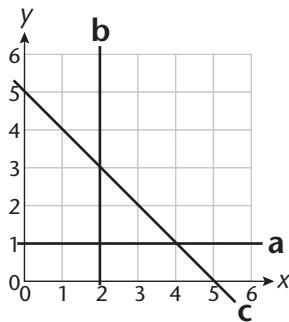
4 $(2, 3)$

5 $y = 5$, $x + y = 2$ and $x = -3$

6 **a** $y = -x$ **b** $x = -3\frac{1}{2}$ **c** $x + y = 5$ **d** $y = -2\frac{1}{2}$

7 **a i** $x = 1$ **ii** $y = 3$ **iii** $x + y = -2$ **b** 18 square units

8 **d** 2 square units



Pages 40–41 Linear graphs

1 **a** $y = 2x + 1$ and $y = 2x - 3$ **b** $y = 2x + 1$ and $y = 4x + 1$

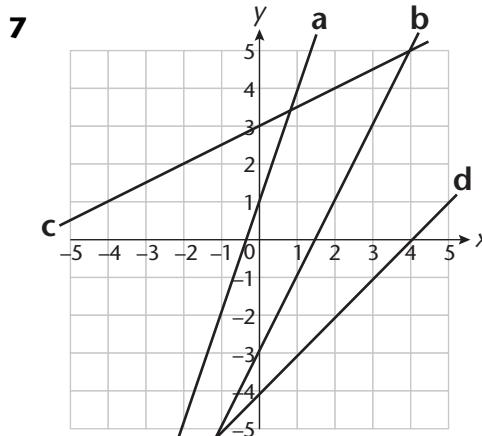
2 c, d, a, b

3 $y = x - 1$

4 $y = 2x + 1$

5 $(3, 8)$ and $(-2, -7)$

6 $y = 2x - 2$



Pages 42–43 BODMAS and powers

1 200

2 400

3 $(6 - 2) \times 8 \div (4 - 2)$

4 $(2 + 3)^2 - 5$ and $(5 - 3) \times (3 + 7)$

5 4

6 30

7 12

8 20

9 a 1024 b 625

10 2^5 , as $2^5 = 32$ and $5^2 = 25$

11 a i 36 ii 36 b i 111 ii 111 c 8000

12 a i 36 ii 36 b i 16 ii 16 c 100

Pages 44–45 Equations 1

1 27

2 13.5

3 a 23 b 27

4 a 5 b 21

5 a 27 b 15 c 5.4 d 1.8

6 a 10.5 b 18 c 17.5 d $3\frac{1}{3}$

7 a 14 b -1

8 $(2x - 5) \times 4 = (x - 4) \times 2$

$$8x - 20 = 2x - 8$$

$$8x - 2x = -8 + 20$$

$$6x = 12$$

$$6x \div 6 = 12 \div 6$$

$$x = 2$$

(1 mark for 3 correct lines)

9 $\frac{4}{x+1} = \frac{6}{2x+1}$

$$4 \times (2x - 1) = 6 \times (x + 1)$$

$$8x - 4 = 6x + 6$$

$$8x - 6x = 6 + 4$$

$$2x = 10$$

$$x = 5$$

(1 mark for 3 correct lines)

Pages 46–47 Equations 2**1** 17**2 a** -1 **b** 15**3 a** 2.5 **b** 0**4** -10**5** 6**6 a** -6 **b** -1 **c** 1 **d** 1.5**7 a** -7 **b** 2.5 **c** 2.7 **d** 2.25**8 a** 1.5 **b** 2**9 a** 2 **b** -5**Pages 48–49 Trial and improvement****1** 64**2** 30**3** 30–35**4** 14**5** 26.368**6** $x(x + 3) = 40$, sides are 5 cm and 8 cm and perimeter is 26 cm.**7** 4.6 (1 mark for testing a value between 4 and 5, 1 mark for testing 4.65)**8** 2.3 (1 mark for testing a value between 2 and 3, 1 mark for testing 2.35)**9 a** Area = $x(x + 2) = x^2 + 2x = 16.64$ **b** 3.2 (1 mark for testing value above 2)