Answers

For full worked solutions, visit:
www.scholastic.co.uk/gcse

Number

Basic number techniques

1 $-12, -8, -1, 0, 2$

2 0.32, 0.3, 0.23, 0.203

3 **a** $-4 < 0.4$ **c** $-0.404 > -0.44$
b $4.200 < 4.3$ **d** $0.33 < 0.4$

4 $-4, -1.4, -1.14, -1, 1.4$

Factors, multiples and primes

1 6

2 17, 19, 23

3 $60 = 2^2 \times 3 \times 5$

4 Drummer 1 hits her drum at: 6 12 18 24 30 36 42 48 54 60 seconds
Drummer 2 hits his drum at: 8 16 24 32 40 48 56 seconds
They hit their drums at the same time twice (two times) after 24 and 48 seconds.

Calculating with negative numbers

1 **a** -10 **b** -4 **c** 5 **d** 1

2 **a** -18 **b** 4 **c** 40 **d** -16

3 $-7°C$

4 1 correct answer; 4 incorrect answers

Division and multiplication

1 **a** 2142 **b** 11 223 **c** 92 **d** 52

2 **a** 12 **b** 12

3 £335

4 **a** 1656 hours **b** 1152 hours

Calculating with decimals

1 76.36

2 £7.51

3 38.29

4 Flo raises £28.75; Kirsty raises £143.75

Rounding and estimation

1 0.80

2 $4.085 \leq x < 4.095$

3 5

4 **a** £7500
b Overestimate, because the concert ticket price and number of tickets sold were rounded up, and so the amount of income was estimated more than it really is.

Converting between fractions, decimals and percentages

1 **a** $\frac{71}{1000}$ **c** 40%
b 0.63 **d** $\frac{8}{25}$

2 **a** 0.3125 **b** 31.25%

3 $\frac{5}{8} = 0.625$ 0.65 $60\% = 0.6$
Therefore, 0.65 is largest.

Ordering fractions, decimals and percentages

1 **a** $\frac{1}{2} < 0.6$ **b** $\frac{3}{4} > 0.7$ **c** $-\frac{3}{10} < 0.2$

2 **a** $\frac{5}{12}$ $\frac{9}{20}$ $\frac{7}{15}$
b $\frac{1}{25}$ 0.4 45%

3 $\frac{1}{3} = 33.3\%$; $\frac{2}{5} = 40\%$, so shop C, shop A, shop B

4 $\frac{5}{9}$ 38.5% 0.38 $\frac{3}{10}$

Calculating with fractions

1 $\frac{29}{45}$ 2 $\frac{1}{12}$ 3 $\frac{11}{21}$ 4 10

Percentages

1 10 2 £13.60 3 14193 4 £1008

Order of operations

1 7 2 23 3 4.0964

Exact solutions

1 $0.133\,cm^2$

2 $1\frac{7}{9}\,m^2$

3 $2\sqrt{3}\,cm^2$

4 Area of a circle $= \pi r^2$
The fraction of the circle shown $= \frac{3}{4}$
The area of the circle shown $= \frac{3}{4} \times \pi r^2$
Radius $= 2\,cm$
The area of the shape $= \frac{3}{4} \times \pi \times 2^2 = \frac{3}{4} \times \pi \times 4 = 3\pi$

Indices and roots

1 **a** 7^4 **b** 5^{-3}

2 **a** 16 **b** $\frac{1}{100}$

3 $3^{-2} = \frac{1}{9}$ $4^0 = 1$ $\sqrt[3]{27} = 3$ $\sqrt{25} = 5$ $2^3 = 8$

4 1

Standard form

1 2750

2 1.5×10^8

3 6.42×10^{-3}

4 2.8×10^{-4} km

Listing strategies

1 259, 295, 529, 592, 925, 952

2 **a**

		4-sided spinner			
		0	1	2	3
3-sided spinner	1	1	2	3	4
	2	2	3	4	5
	3	3	4	5	6

b 4

3

		Dice					
		1	2	3	4	5	6
Coin	H	H1	H2	H3	H4	H5	H6
	T	T1	T2	T3	T4	T5	T6

4 spj; spi; sfj; sfi; bpj; bpi; bfj; bfi