

Basic number answers

Page 18

1 a i 72

ii 280

iii 80

b i $4 \times 7 = 28$

ii $28 \div 7 = 4$ or $28 \div 4 = 7$

2 a 4

b i $(2 + 4^2) \div 8 = 2.25$

ii $(2 + 4)^2 \div 8 = 4.5$

Page 19

1 a 3659

b 6864

c 1770

2 a i Ninety-six thousand, nine hundred and twenty-four

ii 96 900

iii 97 000

b i 9 thousand

ii 68 950

iii 69 049

iv 23 000

3 a 898

b 3178

c 1225

4 a 1139

b 2317

Page 20

1 a i 304

b 26

c 378

d 48

2 a i 272p or £2.72

ii 228p or £2.28

b 720

c 28

3 a $20 - 12.85 = £7.15$

b $14.55 \div 3 = £4.85$

c $9 \times 12 = 108$

Remember: Check which grade you are working at.

Fractions answers

Page 21

1 a $\frac{9}{12}$ and $\frac{60}{80}$

b Any 18 squares shaded

c i $\frac{14}{20}$ or $\frac{7}{10}$

ii $\frac{6}{20}$ or $\frac{3}{10}$

2 a i Any 2 squares shaded

ii Any 3 squares shaded

b $\frac{5}{9}$

3 a The fraction is $\frac{2}{5}$

b $\frac{4}{10}$ or $\frac{6}{15}$ or $\frac{20}{50}$ or $\frac{8}{20}$ etc.

Page 22

1 a i Any 2 squares shaded

ii Any 4 squares shaded

iii Any 6 squares shaded

iv Any 10 squares shaded

(1 mark for 3 correct)

b i 12

ii 32

iii 6

iv 2

c i $\frac{4}{7}$

ii $\frac{3}{5}$

iii $\frac{2}{5}$

iv $\frac{3}{4}$

d $\frac{13}{20}, \frac{7}{10}, \frac{4}{5}$

2 a i $1\frac{4}{5}$

ii $2\frac{3}{7}$

iii $2\frac{5}{8}$

iv $7\frac{3}{4}$

b i $\frac{17}{11}$

ii $\frac{11}{8}$

iii $\frac{7}{3}$

iv $\frac{23}{5}$

Remember:

Check which grade you are working at.

Page 23

1 a i 6

ii 10

iii 2

iv 9

b i $\frac{7}{20}$

ii $\frac{13}{16}$

iii $\frac{1}{2}$

iv $\frac{5}{6}$

c i $\frac{11}{20}$

ii $\frac{5}{16}$

iii $\frac{1}{2}$

iv $\frac{1}{6}$

2 a i $\frac{3}{5}$

ii 98

b 210

(1 mark for $90 \times 2 + 30$)

c 165

*(1 mark for 55)***Page 24**

1 a i $\frac{4}{11}$

ii $\frac{1}{6}$

iii $\frac{1}{8}$

iv $\frac{3}{4}$

b i $1\frac{1}{2}$

ii $1\frac{1}{2}$

iii 2

iv 6

2 a $\frac{1}{6}$ *(1 mark for $\frac{250}{1500}$)*

b $\frac{1}{3}$ *(1 mark for $\frac{40}{120}$)*

3 a £2700 *(1 mark for £900)*

b 1.4 kg *(1 mark for 200 g or 0.2 kg)*

Remember: Check which grade you are working at.

Rational numbers and reciprocals answers

Page 25

1 a i 0.175

ii $0.7\dot{3}$

iii $0.8\dot{3}$

iv 0.18

b i 0.4444...

ii 0.5555...

c i 0.2727....

ii 0.5454...

2 a i $\frac{1}{10}$

ii $1\frac{1}{3}$

b i 0.1

ii $1.\dot{3}$

c i 0.8

ii 0.4

iii 0.2

d Keep halving the reciprocals, i.e. 0.2, 0.1, 0.05, 0.025

(1 mark for mentioning halving)

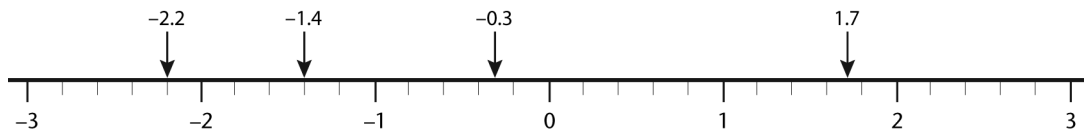
Remember: Check which grade you are working at.

Negative numbers answers

Page 26

- 1 a Aberdeen
 b 9°
 c Aberdeen and Bristol
 d London

2 a



- b $-2.2; -2.1; -2.0$
 c i 2
 ii -9.5

Page 27

- 1 a -1
 b $+6; -6$
 c i $+8$
 ii -4
 d i -7
 ii 11
- 2 $-11, +2, -2, -1$ (1 mark for 3 correct)

Remember: Check which grade you are working at.

More about number answers

Page 28

1 a 6 and 12

b 6 and 10

c

12	7	8
5	9	13
10	11	6

2 a i {1, 3, 11, 33}

ii {1, 2, 3, 6, 9, 18}

b i 84 or 90

ii 85 or 90

c 60 seconds

Remember: Check which grade you are working at.

Primes and squares answers

Page 29

- 1 a** 11 and 13
b 2 is even and prime
c 9 and 16
d $5^2 = 25$; $10^2 = 100$
e 11 and 13
- 2 a** Either odd or even
b Either odd or even
c Always odd
d Either odd or even

Remember: Check which grade you are working at.

Roots and powers answers

Page 30

1 a $\sqrt{49} = 7$

b $\sqrt{64} = 8$

c $2^4 = 16 > \sqrt{144} = 12$

d i 13

ii 125

e i 4

ii 256

2 a 64, 4; 256, 6; 1024, 4

b 4; all odd powers of 4 end in 4

c $5^6 = 15625 > 6^5 = 7776$

Remember: Check which grade you are working at.

Powers of 10 answers

Page 31

1 a 4 tenths; 0.4 or $\frac{4}{10}$

b 10^4

c 10 000 000

d 100; $\frac{1}{100}$; 10^1 ; 10^0 ; 10^{-3} (1 mark for 4 correct)

e i 1

ii 5

2 a i 370

ii 250

b i 0.76

ii 0.0065

c i 12 000 000

ii 360 000

d i 3000

ii 500

Remember: Check which grade you are working at.

Prime factors answers

Page 32

1 a 90

b $2 \times 5 \times 7$

c $2^4 \times 3$

d i 9, 3, 3, 10, 2, 5, 2, 5 (1 mark for 4 correct)

ii $2^2 \times 3^2 \times 5^2$

2 a i 5

ii $2 \times 3 \times 5^2$

b i 3

ii $2^3 \times 3^3$

Remember: Check which grade you are working at.

LCM and HCF answers

Page 33

- 1 a** $2^3 \times 3$
b $2^2 \times 3 \times 5$
c 120
d 12
e i $2^4 \times 3^2 \times 5^2$
ii $2^2 \times 3 \times 5$
- 2 a** $p = 2, q = 3$
b $2^3 \times 3^2 \times 5$
c $a = 2, b = 7$
d $2^2 \times 7^2$

Remember: Check which grade you are working at.

Powers answers

Page 34

1 a 4^8

b 6^3

c i 4

ii 3

d 49

e 100 000 000

f 1 000 000

2 a x^7

b x^4

c $(ab)^n$

d $(a \div b)^n$

Remember: Check which grade you are working at.

Number skills answers

Page 35

- 1 a i** He has forgotten the zero when multiplying by the 4
ii 1776
- b i** He has added instead of multiplying
ii 1363 (1 mark for a partial method)
- 2 a** 3456 (1 mark for a partial method)
b £23.52 (1 mark for a partial method)

Page 36

- 1 a i** 29
ii 58
iii 290
iv 580 (1 mark for 3)
- b**
- $$\begin{array}{r} 1508 \\ - \quad 580 \\ \hline 928 \\ - \quad 580 \\ \hline 348 \\ - \quad 290 \\ \hline 58 \\ - \quad 58 \\ \hline 0 \end{array}$$
- $1508 \div 29 = 52$
- c i** 52 remainder 12
ii 26
- 2 a** 14 592 (1 mark for a partial method)
b 38 (1 mark for a partial method)

Remember: Check which grade you are working at.

Page 37

1 a 476 (1 mark for a partial method)

b 9 (1 mark for 8 remainder 12)

2 a i 40 or 10

ii 0.007 or $\frac{1}{1000}$ or 0.001

b i 23.5

ii 23.48

iii 23.479

Page 38

1 a £3.84 + £4.30 + £1.10 = £9.24

b i 7.8

ii 6.24 (1 mark for 1.04 and 5.2)

c i £6.24

ii £300

2 a i 17.4

ii 13.34 (1 mark for 11.6 or 1.74)

b £13.34

Remember: Check which grade you are working at.

More fractions answers

Page 39

1 a $1\frac{3}{20}$ (1 mark for $\frac{15}{20} + \frac{8}{20}$)

b $1\frac{13}{15}$ (1 mark for $\frac{11}{3} - \frac{9}{5}$)

c $\frac{11}{60}$ (1 mark for $\frac{49}{60}$)

2 a $3\frac{1}{2}$ (1 mark for $\frac{5}{2} \times \frac{7}{5}$)

b $1\frac{3}{8}$ (1 mark for $\frac{33}{10} \times \frac{5}{12}$)

c $\frac{39}{40}$ (1 mark for $\frac{1}{2} \times \frac{13}{6} \times \frac{9}{10}$)

Remember: Check which grade you are working at.

More number answers

Page 40

1 a i -12

ii -3

iii -20

b Any two negatives where the second is 2 less than the first, e.g. $-5 - -7$; $-9 - -11$

c i 9 is a square number but -4 is not; as all square numbers are positive

ii 1 *(1 mark for total = 7)*

2 a i 50

ii 0.4

b 200 *(1 mark for $(50 \times 40) \div (20 - 10)$)*

c 50 *(1 mark for $(50 - 30) \div 0.4$)*

Remember: Check which grade you are working at.

Ratio answers

Page 41

1 360° (1 mark); $360^\circ \div 18 (= 20^\circ)$ (1 mark); largest angle = 160°

2 a 4 : 3

b 1 : 0.4

c 375 ml (1 mark for $1000 \div 8$ or 125 ml)

3 35 (1 mark for $15 \div 3 (= 5)$)

Remember: Check which grade you are working at.

Speed and proportion answers

Page 42

- 1 a** 32 km per hour *(1 mark for $72 \div 2.25$, 1 mark for units)*
b 36 km per hour *(1 mark for 63 km)*
- 2 a** 30 *(1 mark for 5.5)*
b 143 miles
- 3** Handy size 3.87 g/p compared to large size 3.64 g/p *(1 mark for $\text{grams} \div \text{pence}$)*

Remember: Check which grade you are working at.

Percentages answers

Page 43

1 a	Decimal	Fraction	Percentage
	0.35	$\frac{7}{20}$	35
	0.8	$\frac{4}{5}$	80
	0.9	$\frac{9}{10}$	90

(2 marks for 4 or 5 right; 1 mark for 2 or 3 right)

b i $\frac{3}{10}$

ii 70%

c $\frac{11}{20}$ (0.55); $\frac{14}{25}$ (0.56); 57% (0.57); 0.6

2 a $6000 \times 0.88 \times 0.9$

b $\pounds 6.80 + \pounds 3.40 + \pounds 1.70$ (1 mark); $\pounds 11.90$

Page 44

1 a $\pounds 52.50$ (1 mark for 0.15×350)

b $\pounds 297.50$

2 a $\pounds 822.50$ (1 mark for 1.175×700)

b $\pounds 220$ (1 mark for 0.88×250)

3 18% (1 mark for $405 \div 2250$)

Remember: Check which grade you are working at.