

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

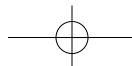
c 28

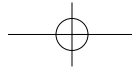
3 a $20 - 12.85 = £7.15$

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 $7\frac{3}{4}$

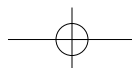
b i $\frac{17}{11}$

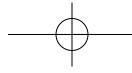
ii $\frac{11}{8}$

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
c 165

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

(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

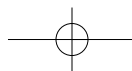
2 a $\frac{1}{6}$ *(1 mark for $\frac{250}{1500}$)*

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

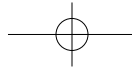
ii 0.4

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

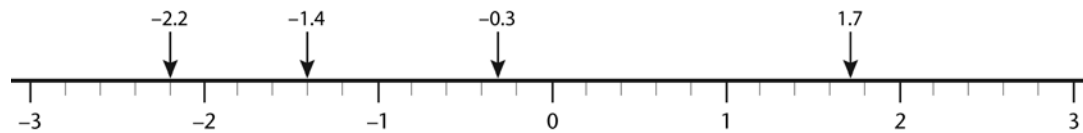
1 a Aberdeen

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

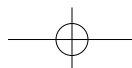
d i -7

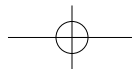
ii 11

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}

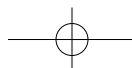
ii {1, 2, 3, 6, 9, 18}

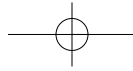
b i 84 or 90

ii 85 or 90

c 60 seconds

Remember: Check which grade you are working at.



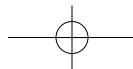


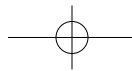
Primes and squares answers

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

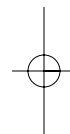
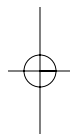
e i 4

ii 256

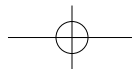
2 a 64, 4; 256, 6; 1024, 4

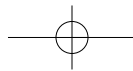
b 4; all odd powers of 4 end in 4

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



Remember: Check which grade you are working at.



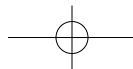


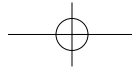
Powers of 10 answers

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

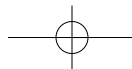
2 a i 5

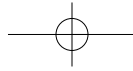
ii $2 \times 3 \times 5^2$

b i 3

ii $2^3 \times 3^3$

Remember: Check which grade you are working at.



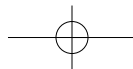


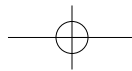
LCM and HCF answers

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.



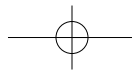


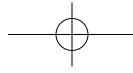
Powers answers

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

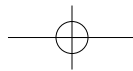
Page 35

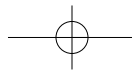
- 1 a i** He has forgotten the zero when multiplying by the 4
ii 1776
- b i** He has added instead of multiplying
ii 1363 (1 mark for a partial method)
- 2 a** 3456 (1 mark for a partial method)
b £23.52 (1 mark for a partial method)

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 ÷ 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.



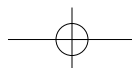
**Page 37**

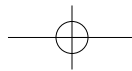
- 1 a** 476 (1 mark for a partial method)
b 9 (1 mark for 8 remainder 12)
- 2 a i** 40 or 10
ii 0.007 or $\frac{1}{1000}$ or 0.001
- b i** 23.5
ii 23.48
iii 23.479

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.



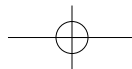


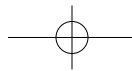
More fractions answers

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 $\frac{11}{3} - \frac{2}{3}$)
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)*

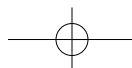
2 a i 50

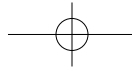
ii 0.4

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

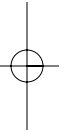
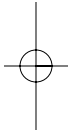
1 360° (1 mark); $360^\circ \div 18 (= 20^\circ)$ (1 mark); largest angle = 160°

2 a 4 : 3

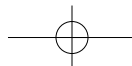
b 1 : 0.4

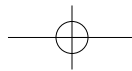
c 375 ml (1 mark for $1000 \div 8$ or 125 ml)

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



Remember: Check which grade you are working at.



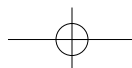


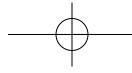
Speed and proportion answers

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 grams \div 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.

