

# Number answers

## Page 16

- 1 a** i 572 (1 mark for 476 and 96) **2 a i** 18  
 b 7 of each (1 mark for  $128 \div 20$ ) **ii** 24  
**b i** £6.24  
**ii** £300

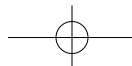
## Page 17

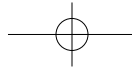
- 1 a i** 70 000 **2 a i** 370  
**ii** 0.067 **ii** 250  
**b i** 6000 **b i** 0.76  
**ii** 250 **ii** 0.0065  
**c i** 12 000 000  
**ii** 360 000  
**d i** 3 000  
**ii** 500

## Page 18

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

**Remember:** Check which grade you are working at.



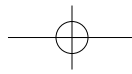


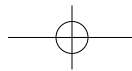
# Fractions answers

## Page 19

- 1 a**  $1\frac{3}{20}$  (1 mark for  $\frac{15}{20} + \frac{8}{20}$ )  
**b**  $1\frac{13}{20}$  (1 mark for  $\frac{11}{3} - \frac{9}{3}$ )  
**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  $\frac{10}{33} \times \frac{5}{12}$ )  
**c**  $\frac{39}{40}$  (1 mark for  $\frac{1}{2} \times \frac{13}{6} \times \frac{9}{10}$ )

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# Percentage answers

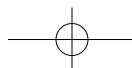
## Page 20

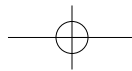
- 1 a**  $6000 \times 0.88 \times 0.9$   
**b**  $£6.80 + £3.40 + £1.70$  (1 mark); £11.90
- 2 a** £822.50 (1 mark for  $1.175 \times 700$ )  
**b** £220 (1 mark for  $0.88 \times 250$ )
- 3** 18% (1 mark for  $405 \div 2250$ )

## Page 21

- 1 a**  $8000 \times 0.88 \times 0.88$   
**b** £2458.51 (1 mark for  $2000 \times 1.035^6$ )  
**c** £1771.68 (1 mark for  $2000 \times 0.98^6$ )
- 2 a** Electro £228, Corries £228.80  
**b** £380 (1 mark for  $361 \div 0.95$ )

**Remember:** Check which grade you are working at.





# Ratio answers

## Page 22

1 a 4 : 3

b 1 : 0.4

c 375 ml

2 35 (1 mark for  $15 \div 3 (= 5)$ )

3 a 32 km per hour  
(1 mark for  $72 \div 2.25$ ; 1 mark for units)

b 36 km per hour  
(Deduct a mark if units not included)

## Page 23

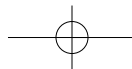
1 a 30 (1 mark for 5.5)

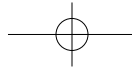
b 143 miles

2 Handy size 3.87 g/p compared to  
large size 3.63 g/p (1 mark for  $\text{grams} \div \text{pence}$ )

3  $0.0068 \text{ kg/cm}^3$  or  $6.8 \text{ g/cm}^2$  (1 mark for units)

**Remember:** Check which grade you are working at.





# Powers and reciprocals answers

## Page 24

**1 a i** 13

**ii** 125

**b i** 4

**ii** 256

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

**b** 4; all odd powers end in 4

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

**3 a**  $\frac{1}{8}$

**b**  $\frac{1}{16}$

**c**  $\frac{3}{8}$

(1 mark for  $\frac{1}{8} + \frac{1}{4}$ )

## Page 25

**1 a**  $4.52 \times 10^4$

**b** 0.006

**c**  $1.8 \times 10^6$

**d**  $8 \times 10^{-4}$

**e**  $2 \times 10^2$

**f**  $6 \times 10^2$

**2 a i** 0.4444...

**ii** 0.5555...

**b i**  $\frac{1}{10}$

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

**c i** 0.1

**ii**  $1.\dot{3}$

**d i** 0.8

**ii** 0.4

**iii** 0.2

## Page 26

**1 a**  $x^7$

**b**  $x^4$

**c i** 4

**ii** 3

**d** 1 000 000

**2 a**  $16a^4b^3$

(1 mark for top line as  $32a^5b^5$ )

**b**  $9x^4y^6$

(1 mark for any two correct terms)

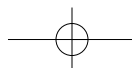
**3 a** 2

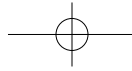
**b**  $\frac{1}{11}$

**c**  $\frac{1}{27}$

(1 mark for 27)

**Remember:** Check which grade you are working at.



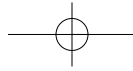


# Surds answers

## Page 27

- 1 a**  $4\sqrt{3}$   
**b**  $9\sqrt{3}$   
**c**  $-2 + 4\sqrt{3}$  (1 mark for each term)  
**d** 1 (1 mark for  $5 + 2\sqrt{5} - 2\sqrt{5} - 4$ )
- 2 a**  $\frac{\sqrt{6}}{2}$  (1 mark for  $\frac{3\sqrt{6}}{6}$ )  
**b**  $2\sqrt{2}$   
**c**  $\frac{(16+12)}{4\sqrt{12}}$  (1 mark);  $\frac{(28 \times \sqrt{12})}{48}$  (1 mark)

**Remember:** Check which grade you are working at.



# Variation answers

## Page 28

1 a  $m = ks^3$

b  $\frac{1}{20}$

c 40

d 4

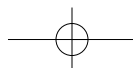
2 a i  $\frac{1}{8}$

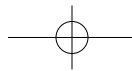
ii 4

b 4

(1 mark for  $y = \frac{20}{\sqrt[3]{x}}$ )

**Remember:** Check which grade you are working at.





# Limits answers

## Page 29

**1 a i** 45

**ii** 54

**b i** 45

**ii** 55

**2 a**  $7414.875 \text{ cm}^3$  (1 mark for 19.5)

**b**  $8615.125 \text{ cm}^3$  (1 mark for 20.5)

**3**  $x = 225$  to  $235$

$y = 395$  to  $405$  (1 mark)

$\frac{235}{395^2}$  (1 mark)

$= 0.001506$  (1 mark)

**Remember:** Check which grade you are working at.

