

Fractions answers

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

b $1\frac{13}{20}$ (1 mark for $\frac{11}{3} - \frac{9}{5}$)

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 $\frac{10}{33} \times \frac{5}{12}$)

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.

Percentage answers

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- 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 1.175×700)
b £220 (1 mark for 0.88×250)
- 3** 18% (1 mark for $405 \div 2250$)

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

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Ratio answers

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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)

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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 kg/cm^3 or 6.8 g/cm^2 (1 mark for units)

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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 $\frac{1}{8} + \frac{1}{4}$)

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1 a 4.52×10^4

b 0.006

c 1.8×10^6

d 8×10^{-4}

e 2×10^2

f 6×10^2

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

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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

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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

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1 a i 45

ii 54

b i 45

ii 55

2 a 7414.875 cm^3 (1 mark for 19.5)

b 8615.125 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.