



## Number

### Basic number techniques

- 1 a false c true e true  
 b true d true
- 2  $-0.3, -1.5, -2.5, -4.2, -7.2$
- 3  $0.049, 0.124, 0.412, 0.442, 1.002$
- 4 a  $<$  b  $<$  c  $>$

### Factors, multiples and primes

- 1 a 5 b 1, 12  
 c 1, 5, 45 d 1, 5
- 2 HCF = 10, LCM = 1050
- 3  $2 \times 3^2 \times 5$
- 4 a 10 b 840
- 5 12 and 18

### Calculating with negative numbers

Stretch it! negative, yes

- 1 a  $-11$  c  $-6$  e 0  
 b 99 d 18 f 25
- 2  $-8$  and 9
- 3  $32^\circ\text{C}$

### Division and multiplication

Stretch it! 148 419

- 1 a 2115 b 56364
- 2 a 47 c 126 remainder 4 or  $126\frac{4}{17}$   
 b 516
- 3 a 33 boxes b 1 pencil
- 4 £91.25
- 5 £288
- 6  $307\frac{2}{3}$
- 7 28805
- 8 a 682 b 13 c 5
- 9 37 boxes
- 10 He has not placed a zero in the units column before multiplying through by 5.

### Calculating with decimals

Stretch it! 18.2

- 1 a 2.33 c 0.035 e 1.563 g  $-6$   
 b 24.391 d 6.099 f 0.6 h  $-5.04$
- 2 £4.64
- 3 Erica: £54.92; Freya: £27.46

### Rounding and estimation

Stretch it! a 1.0 b 1.00 c 1.000 – they are all 1

Stretch it!  $55.25\text{m}^2$  – an overestimate.

- 1 a 0.35 c 32.6  
 b 10 d 33100

- 2 a  $150 \leq x < 250$  c  $3.15 \leq x < 3.25$   
 b  $5.5 \leq x < 6.5$  d  $5.055 \leq x < 5.065$
- 3  $\frac{30}{0.5 \times 6} = 10$
- 4 a 23580 c 23600 e 20000  
 b 23580 d 24000
- 5 b is false since  $18 \times 1 = 18$  so  $18 \times 0.9$  cannot be 1.62  
 c is false since if you divide by a number smaller than 1 the answer will be larger.
- 6 Tarik should choose One tariff.

### Converting between fractions, decimals and percentages

Stretch it!  $0.\dot{1}, 0.\dot{2}, 0.\dot{3}, \dots 0.\dot{4}, 0.\dot{5}$

- 1 a  $\frac{32}{100} = \frac{8}{25}$  c  $\frac{33}{100}$   
 b  $1\frac{24}{100} = 1\frac{6}{25}$  d  $\frac{95}{100} = \frac{19}{20}$
- 2 a 0.416 c 0.49 e  $0.42857\dot{1}$   
 b 0.375 d 0.185
- 3 a 91% c 80%  
 b 30% d 60%
- 4 37.5%
- 5 30%,  $0.35, \frac{2}{5}$
- 6  $\frac{15}{20} = \frac{75}{100} = 75\%$  – Amy  
 Rudi was highest

### Ordering fractions, decimals and percentages

- 1  $\frac{7}{12}, \frac{3}{8}, \frac{1}{3}$
- 2  $-2.2, -\frac{1}{10}, 1\%, 0.1, 15\%, \frac{1}{5}, 7$  (so the middle is 0.1)
- 3 Yes, if the numerator of a fraction is half the denominator then the fraction is equivalent to  $\frac{1}{2}$ . If the numerator is smaller than this the fraction must be less than  $\frac{1}{2}$ .

### Calculating with fractions

Stretch it! No, you could add the whole number parts then the fraction parts, giving:

$$1 + 2 = 3$$

$$\frac{3}{5} + \frac{1}{4} = \frac{17}{20}$$

$$= 3\frac{17}{20}$$

- 1 a  $1\frac{5}{8}$  c  $\frac{10}{21}$  e  $\frac{2}{25}$   
 b  $\frac{6}{17}$  d  $8\frac{3}{20}$
- 2 a 12 b £35 c 808mm
- 3 20
- 4 35

### Percentages

- 1 a 1.8cm b £0.30 c 4ml
- 2 a 33 b 540 c £101.92
- 3 a 480 b 133 c £14.58