

## A Number skills: Mental calculation

Skill 1.5

Calculate by splitting the numbers into useful parts:

- |                                     |  |   |  |
|-------------------------------------|--|---|--|
| 1 (a) $23 \times 2000$              | (b) $250 \times 1000$                            | (c) $4.2 \times 2000$                           | (d) $30 \times 2000$                             |
| (e) $1600 \times 0.5$               | (f) $\frac{1}{3}$ of \$12.12                     | (g) $\frac{3}{4}$ of \$12.12                    | (h) $\frac{2}{5}$ of 50 kg                       |
| (i) $\frac{1}{5}$ of 150 t          | (j) $\frac{16}{56}$                              | (k) $1.9 \times 200\,000$                       | (l) $1.02 \times 200$                            |
| 2 (a) $6\frac{1}{2} - 2\frac{1}{4}$ | (b) $2\frac{1}{8} + \frac{1}{4}$                 | (c) $5\frac{2}{3} - 4\frac{1}{3}$               | (d) $6\frac{1}{4} + 2\frac{1}{4}$                |
| (e) $6\frac{1}{4} + \frac{3}{4}$    | (f) $10\frac{2}{5} + 3\frac{1}{5} + \frac{2}{5}$ | (g) $5\frac{1}{4} - 2\frac{1}{2} + \frac{1}{4}$ | (h) $3\frac{1}{8} + 2\frac{1}{8} + 5\frac{1}{8}$ |
| (i) $11\frac{2}{3} + 5\frac{1}{3}$  | (j) $3\frac{2}{7} + 5\frac{4}{7}$                | (k) $3\frac{5}{7} - 1\frac{2}{7}$               | (l) $12\frac{3}{8} - 1\frac{1}{8}$               |

## B Number applications: Rates

Skill 2.9

- Find the rate at which these tanks empty in litres per hour if each empties in  $3\frac{1}{2}$  hours.  
The tanks contain:
 

(a) 1200 L	(b) 380 L	(c) 580 L	(d) 6300 L
(e) 5200 L	(f) 840 L	(g) 3800 L	(h) 94 000 L
(i) 12 000 L	(j) 15 000 L		
- A steam train travels at 12 km/h. How long will it take to travel:
 

(a) 144 km	(b) 78 km	(c) 66 km	(d) 15 kms
(e) 27 km	(f) 88 km	(g) 21 km	(h) 81 km
(i) $14\frac{2}{5}$ km	(j) 64 km		

## C Algebra: Variation

Skill 3.14

- The distance travelled ( $d$  m) by a missile varies directly with time of flight ( $t$  s). If the missile travels 2400 m in 12 s, then find:
  - The formula which connects the distance with the time of flight.
  - The distance travelled in 210 seconds.
  - The time taken to travel 3800 metres.
- The time taken ( $t$  s) to travel a journey varies inversely with the speed of travel ( $v$  m/s). If it takes 12 seconds to complete a journey travelling at 6 m/s, find:
  - The formula which relates the time of travel to the speed.
  - The time taken for the journey if the speed is increased to 36 m/s.

## D Indices: Solving Indical equations

Skill 4.8

- Solve these for  $x$ :
 

(a) $x^3 = 216$	(b) $x^4 = 81$	(c) $x^5 = 32$
(d) $x^2 = 225$	(e) $x^3 = 64$	
- Solve these to 2 decimal places by using the remove the power method:
 

(a) $x^4 = 3$	(b) $x^2 = 18.2$	(c) $x^5 = 1$
(d) $x^6 = 2$	(e) $x^7 = 3$	

## E Cartesian plane: Finding the distance between two points

Skill 5.2

Find the distance between these points using the graph construction method:

- |                       |                       |                      |
|-----------------------|-----------------------|----------------------|
| 1 (0, 0) and (3, 5)   | 2 (1, 1) and (4, 9)   | 3 (4, -2) and (2, 4) |
| 4 (-2, 3) and (2, -3) | 5 (6, -3) and (-4, 3) |                      |

Answers to worksheets

**Worksheet 11**

- A 1 (a) 46 000 (b) 250 000 (c) 8400  
 (d) 60 000 (e) 800 (f) \$4.04  
 (g) \$9.09 (h) 20 kg (i) 30 t  
 (j)  $\frac{2}{7}$  (k) 380 000 (l) 204
- 2 (a)  $4\frac{1}{4}$  (b)  $2\frac{3}{8}$  (c)  $1\frac{1}{3}$  (d)  $8\frac{1}{2}$   
 (e) 7 (f) 14 (g) 3 (h)  $10\frac{3}{8}$   
 (i) 17 (j)  $8\frac{6}{7}$  (k)  $2\frac{3}{7}$  (l)  $11\frac{1}{4}$
- B 1 (a)  $342\frac{6}{7}$  (b)  $108\frac{4}{7}$  (c)  $165\frac{5}{7}$   
 (d) 1800 (e)  $1485\frac{5}{7}$  (f) 240  
 (g)  $1085\frac{5}{7}$  (h)  $26857\frac{1}{7}$  (i)  $3428\frac{1}{7}$   
 (j)  $4285\frac{5}{7}$
- 2 (a) 12 hrs (b)  $6\frac{1}{2}$  hrs (c)  $5\frac{1}{2}$  hrs  
 (d)  $1\frac{1}{4}$  hrs (e)  $2\frac{1}{4}$  hrs (f)  $7\frac{1}{3}$  hrs  
 (g)  $1\frac{3}{4}$  hrs (h)  $6\frac{3}{4}$  hrs (i)  $1\frac{1}{5}$  hrs  
 (j)  $5\frac{1}{3}$  hrs
- C 1 (a)  $d = 200t$  (b) 42 000 m (c) 19 s
- 2 (a)  $t = \frac{72}{v}$  (b) 2 s
- D 1 (a) 6 (b) 3 (c) 2  
 (d) 15 (e) 4
- 2 (a) 1.32 (b) 4.27 (c) 1  
 (d) 1.12 (e) 1.17
- E 1 5.83 2 8.54 3 6.32  
 4 7.21 5 11.66