1 Write two hundred thousand and seventeen in figures.

.... 200 017 .... [1]

1 At noon, the temperature is 4 °C.
At midnight, the temperature is −9 °C.

Work out the difference in temperature between noon and midnight.

$$4 - {-9}$$
$$= 4 + 9$$
$$= 13$$

.... 13 .... °C [1]

1 Find the temperature that is 8 °C colder than −5 °C.

$$-5 - 8 = -13$$

.... −13 .... °C [1]

1 Write down the number that is 23 less than −1.6 .

$$-1.6 - 23 = -24.6$$

.... −24.6 .... [1]

2 At noon the temperature in Maseru was 21 °C.
At midnight the temperature had fallen by 26 °C.

Work out the temperature at midnight.

$$21 - 26 = -5$$

.... −5 .... °C [1]

2 Write down the number that is 9 greater than −23.

$$-23 + 9 = -14$$

.... −14 .... [1]

2 Write as a fraction in its simplest form.

(a) 72%

$$\frac{72}{100} \xrightarrow{\div 2} \frac{36}{50} \xrightarrow{\div 2} \frac{18}{25}$$

................$\frac{18}{25}$................ [1]

(b) 0.004

$$\frac{0.004}{1} \xrightarrow{\times 1000} \frac{4}{1000} \xrightarrow{\div 4} \frac{1}{250}$$

................$\frac{1}{250}$................ [1]

1 Write 84% as a fraction in its lowest terms.

$$\frac{84}{100} \xrightarrow{\div 4} \frac{21}{25}$$

................$\frac{21}{25}$................ [1]

1 Work out.

B
I
DM
AS

(a) $1 + 2 - 3 \times 4$

$1 + 2 - \underline{3 \times 4}$

$\underline{1 + 2} - 12$

$3 - 12 = -9$

................-9................ [1]

(b) $1 + 2 \times 3 - 4$

$1 + \underline{2 \times 3} - 4$

$\underline{1 + 6} - 4$

$7 - 4 = 3$

................3................ [1]

1 Work out.

$3 + 7 \times 2 + 5$

$3 + \underline{7 \times 2} + 5$

$3 + 14 + 5 = 22$

................22................ [1]

2 Insert one pair of brackets to make this calculation correct.

$$7 - (5 - 3) + 4 = 9$$

[1]

4 Insert **two** pairs of brackets to make this statement correct.

$$[3 \times (7 - 3) + 4] \times 2 = 32$$

[1]

1 (a) Insert **one** pair of brackets to make the statement correct.

$$3 \times (7 + 2) + 9 = 36$$

[1]

(b) Work out $(0.2)^3$.

$$= 0.2 \times 0.2 \times 0.2$$

three digits after decimal point

$$2 \times 2 \times 2 = 8$$

...........0.008........... [1]

$$\rightarrow 0.008$$

three digits after decimal point

1 Work out.

$$(0.03)^2$$

$$= 0.03 \times 0.03 \rightarrow 0.0009$$

four digits after d.p.

four digits after d.p.

$$3 \times 3 = 9$$

...........0.0009........... [1]

2 Work out $(0.1)^4$.

$$= 0.1 \times 0.1 \times 0.1 \times 0.1$$

four digits after d.p.

$$1 \times 1 \times 1 \times 1 = 1$$

...........0.0001........... [1]

$$\rightarrow 0.0001$$

four digits after d.p.

3 Work out.

(a) 2.04×20

$2.\underline{04} \times 20$

two digits after d.p.

$204 \times 20 = 4080$

$\rightarrow 40.80$ — two digits after d.p. .... 40.8 .... [1]

(b) $\frac{0.09}{0.003}$

$\frac{0.09}{0.003}$ ×1000 → $\frac{90}{3} = \underline{30}$

need to make this an integer

.... 30 .... [1]

1 Work out $1.1 - 0.2^2$.

$0.2^2 = 0.\underline{2} \times 0.\underline{2}$

$2 \times 2 = 4$

$\rightarrow 0.04$

$\begin{array}{r} 1.\cancel{1}0 \\ -0.04 \\ \hline 1.06 \end{array}$

.... 1.06 .... [2]

2 Work out.

(a) $-7 \div -2$

$-7 \div -2 = 3.5$

.... 3.5 .... [1]

(b) $(0.3)^2$

$0.\underline{3} \times 0.\underline{3}$

$3 \times 3 = 9$

$\rightarrow \underline{0.09}$

.... 0.09 .... [1]

3 Work out.

(a) 0.04×0.06

$0.\underline{04} \times 0.\underline{06}$

$4 \times 6 = 24$

$\rightarrow \underline{0.0024}$

.... 0.0024 .... [1]

(b) $\frac{0.02}{0.8}$

$\frac{0.02}{0.8}$ ×10 → $\frac{0.2}{8}$ → $8\overline{)0.200}$ = 0.025

make this an integer

.... 0.025 .... [1]

1 Work out.

(a) 0.3×0.2

$0.\underline{3} \times 0.\underline{2}$

$3 \times 2 = 6$

$\rightarrow \underline{0.06}$

............0.06............ [1]

(b) $12 \div 0.4$

$\dfrac{12}{0.4}$ $\xrightarrow{\times 10}$ $\dfrac{120}{4} = \underline{30}$

$\times 10$

............30............ [1]

3 Work out 0.4×0.001.

$0.\underline{4} \times 0.\underline{001}$

$4 \times 1 = 4$

$\rightarrow \underline{0.0004}$

............0.0004............ [1]

3 Work out.

(a) 0.06×0.12

$0.\underline{06} \times 0.\underline{12}$

$6 \times 12 = 72$

$\rightarrow 0.0072$

............0.0072............ [1]

(b) 0.2^3

$0.\underline{2} \times 0.\underline{2} \times 0.\underline{2}$

$2 \times 2 \times 2 = 8$

$\rightarrow 0.008$

............0.008............ [1]

(c) $\dfrac{0.4}{0.08}$

$\dfrac{0.4}{0.08}$ $\xrightarrow{\times 100}$ $\dfrac{40}{8} = \underline{5}$

$\times 100$

needs to → be an integer

............5............ [1]

1 Work out.

(a) $3 - 0.018$

$$\begin{array}{r} \overset{2}{\cancel{3}} \cdot \overset{9}{\cancel{0}}\overset{9}{\cancel{0}}{\overset{1}{0}} \\ - \ 0 \cdot 0 1 8 \\ \hline 2 \cdot 9 8 2 \end{array}$$

...........2·982........... [1]

(b) 0.04^2

$0 \cdot 04 \times 0 \cdot 04$

$4 \times 4 = 16$

→ $\underline{0 \cdot 0016}$

...........0·0016........... [1]

(c) $\frac{0.08}{0.2}$

$\frac{0 \cdot 08}{0 \cdot 2}$ ×10 → $\frac{0 \cdot 8}{2} = \underline{0 \cdot 4}$ ×10

...........0·4........... [1]

2 Work out $(1 - 0.8)^2$.

$= 0 \cdot 2^2 = 0 \cdot 2 \times 0 \cdot 2$

$2 \times 2 = 4$

→ $\underline{0 \cdot 04}$

...........0·04........... [1]

1 Work out $\frac{3.6}{0.004}$

$\frac{3 \cdot 6}{0 \cdot 004}$ ×1000 → $\frac{3600}{4} = \underline{900}$ ×1000

...........900........... [1]

1 Work out $-45 \div -15$.

$-45 \div -15 = 3$

...........3........... [1]

1   Work out.

   (a) $(-2) + (-3) - (-4)$

   $-2 + -3 - -4$

   $= -2 - 3 + 4$ $= -5 + 4$

   $= -1$

   ....**-1**...................... [1]

   (b) $(-2) \times (-3) \times (-4)$

   $-2 \times -3 \times -4$

   $6 \times -4 = -24$

   ....**-24**...................... [1]

2   Work out.

   $-48 \div -8$

   $-48 \div -8 = 6$

   ....**6**...................... [1]

3   Find the sum of 3^2 and -3^2.

   CAREFUL: Because of $\overset{1}{\underset{AS}{DM}}$ -3^2 means -3×3.
   Not $(-3)^2$ which is -3×-3

   $3^2 = 9$ $-3^2 = -3 \times 3$ $9 + -9 = 0$
                    $= -9$

   ....**0**...................... [1]

   (b) Work out $(\sqrt{5})^4$.

   $\sqrt{5} \times \sqrt{5} \times \sqrt{5} \times \sqrt{5}$

   $= 5 \times 5$

   $= 25$

   ....**25**...................... [1]

2   Work out the exact value of $\sqrt{2\frac{7}{9}}$.

   $\sqrt{\dfrac{25}{9}} = \dfrac{\sqrt{25}}{\sqrt{9}} = \dfrac{5}{3}$

   ....$\dfrac{5}{3}$...... $\left(\text{or } 1\frac{2}{3}\right)$ [2]

1   Oranges cost 220 rupees per kilogram.

    Work out the cost of 9 kg of these oranges.

$$\begin{array}{r} 220 \\ \times\ \ 9 \\ \hline 1980 \end{array}$$

.................1980................. rupees [1]

4   A bag contains red balls, blue balls and green balls only.
    There are twice as many blue balls as green balls.
    There are twice as many red balls as blue balls.
    There are 16 blue balls in the bag.

    Find the total number of balls in the bag.

Blue: 16
Green: 8
Red: 32   16 + 8 + 32 = 56

.................56................. [2]

9   The total cost of 5 pens and 7 pencils is $6.75 .
    Each pencil costs $0.45 .

    Find the cost of one pen.

Cost of 7 pencils: 7 × 0.45
                     two digits behind d.p.

$$\begin{array}{r} 45 \\ \times\ \ 7 \\ \hline 315 \end{array}$$

                     → 3.15

Cost of 5 pens: 6.75
                 − 3.15
                 ——————
                  3.60

Cost of 1 pen: 5) 3.60 → 0.72

$ ....0.72................. [3]

5 Dippi buys 5 burgers and 4 bags of chips for a total cost of $8.10 .
Burgers cost $1.10 each.

Find the cost of one bag of chips.

Cost of 5 burgers:
$$5 \times 1.10 = \underline{5.50}$$

Cost of 1 bag of chips:
$$4 \overline{)2.60}$$ = 0.65

Cost of 4 bags of chips:
$$8.10 - 5.50 = 2.60$$

$ .... 0.65 .... [3]

3 Figs cost 43 cents each.
Lyra has $5 to buy some figs.

Calculate the largest number of figs Lyra can buy and the amount of change, in cents, she receives.

10 figs:
$$10 \times 43 = 430 \text{ cents}$$

1 more fig:
$$430 + 43 = 473$$
→ can buy $\underline{11}$ figs

$$500 - 473 = 27 \text{ cents}$$

.... 11 .... figs and .... 27 .... cents change [3]