Answers

Basic Skills Practice 2

Rounding, Estimating and Significant Figures

1 a) Round 348.967 to the nearest tenth. 349.0

    b) A rectangular field is 98.47m by 231.36m. Estimate its area. $100 \times 200 = 20,000 \, m^2$

    c) Round 534.785 to two significant figures. 530

Fractions

2 a) $\frac{3}{8} \times 96 = \frac{3}{\cancel{8}_1} \times \frac{\cancel{96}^{12}}{1} = 36$

    b) $\frac{4}{5} \div \frac{3}{7} = \frac{4}{5} \times \frac{7}{3} = \frac{28}{15} = 1\frac{13}{15}$

Mixed Numbers

3 a) $6\frac{5}{6} - 3\frac{7}{8} = \frac{41}{6} - \frac{31}{8} = \frac{328-186}{48} = \frac{142}{48} = 2\frac{23}{24}$

    b) $7\frac{5}{11} \times 1\frac{2}{5} = \frac{82}{11} \times \frac{7}{5} = \frac{576}{55} = 10\frac{26}{55}$

Multiplication

4 a) $43 \times 37 = 1591$

    b) $6.9 \times 8.2 = 56.58$

    c) $(2.3 \times 10^3) \times (8.1 \times 10^6) = 2.3 \times 8.1 \times 10^3 \times 10^6 = 18.63 \times 10^9$
                                            $= 1.863 \times 10^{10}$

Division

5 a) $3690 \div 9 = 410$

    b) $234365 \div 15 = 15624\frac{1}{3}$

    c) $\dfrac{18 \times 27 \times 45 \times 121}{81 \times 22 \times 24 \times 99} = \dfrac{1 \times 9 \times 5 \times 1}{1 \times 2 \times 8 \times 9} = \dfrac{5}{8}$

Squaring and Cubing Numbers

6 a) $7^3 - 13^2 = 343 - 169 = 174$

    b) $11^2 + 8^3 = 121 + 512 = 633$

Ratio

7 a) Mary, Mungo and Midge split some sweets in the ratio 2:5:7. Mungo got 56 sweets.
       How many did the others get?

       Mary: $2 \times 11.2 = 22.4$

       Midge: $7 \times 11.2 = 78.4$

$56 \div 5 = 11.2$

    b) Freda, Bill and Murray split 300 sweets in the proportion 5:7:8. How many more
       sweets did Murray get than Freda?

       Murray − Freda

$300 \div (5+7+8) = 300 \div 20 = 15$ $(8 \times 15) - (5 \times 15) = (3 \times 15) = 45$

    c) Rodney, Raquel and Del raised some money in the proportion of 2:5:8. If Raquel
       raised £18.90 more than Rodney, how much did the three of them raise altogether?

Raquel − Rodney $= 18.90$ Altogether: $2 + 5 + 8 = 15$

$\quad\quad 5 \; - \; 2 \quad = 3$ $15 \times 6.30 = £31.50$

One part $= \dfrac{18.90}{3} = 6.30$

Direct Proportion

8   A is directly proportional to B.
When A is 7, B is 9.
a) Find a formula relating A to B
b) Calculate B when A = 15.
c) Calculate A when B = 30.

Volume

9   a)   A box has the dimensions 18cm by 24cm by 16cm. Calculate the volume of the box.

b)   A sphere has a radius of 18cm. What is the volume of the sphere?

c)   A triangular prism has a cross sectional area of 75cm^2 and a length of 94cm. What is the volume of the prism?

⑧ a) $A \propto B$

$\therefore A = kB$

$\therefore k = \dfrac{A}{B} = \dfrac{7}{9}$

$\therefore A = \dfrac{7}{9}B$

b) $B = \dfrac{9}{7}A$

$= \dfrac{9}{7} \times 15$

$= \dfrac{135}{7}$

$= 19\frac{2}{7}$

c) $A = \dfrac{7}{9}B$

$= \dfrac{7}{9} \times 30$

$= \dfrac{210}{9}$

$= 23\frac{1}{3}$

⑨ ⓐ $\text{Volume} = l \times b \times h = 18 \times 24 \times 16 = 6{,}912 \text{ cm}^3$

ⓑ $\text{Volume}_{sphere} = \dfrac{4}{3}\pi r^3 = \dfrac{4}{3}(18)^3 \pi = 7776\pi \text{ cm}^3$

$\simeq 24{,}429 \text{ cm}^3$
(to nearest whole number).

ⓒ $\text{Volume}_{prism} = X \text{ sectional area} \times \text{length}$

$= 75 \times 94$

$= 7050 \text{ cm}^3$