1 The distance travelled is $d = st$, where s is the speed in km/h and t is the time in hours.

(a) Find d when $s = 80$ and $t = 3$ (1)

(b) Find d when $s = 45$ and $t = 2.5$ (1)

(c) A journey of 150 km took 2 hours. Find the speed (1)

(d) A car travelling at 60 km/h covered 210 km. Find the time (1)

(4 marks)

2 The area of a trapezium is $A = \dfrac{(a+b)h}{2}$, where a and b are the two parallel sides and h is the height.

(a) Find A when $a = 5$, $b = 9$ and $h = 4$ (1)

(b) Find A when $a = 7$, $b = 11$ and $h = 6$ (1)

(c) Write down the order in which you did the three operations (2)

(5 marks)

3 A shop sells sugar at $4{,}500$ shillings a kilogram and charges $2{,}000$ for delivery. The cost is $C = 4500k + 2000$ for k kilograms.

(a) Find the cost of 6 kg (1)

(b) A customer paid $47{,}000$ shillings. How many kilograms did they buy? (1)

(c) A second shop charges $5{,}000$ a kilogram with free delivery. Write a formula for its cost (1)

(d) For 6 kg, which shop is cheaper? Show your working. (2)

(e) For 2 kg, which shop is cheaper? Show your working. (2)

(7 marks)

4 The temperature in degrees Fahrenheit is $F = 1.8C + 32$, where C is the temperature in degrees Celsius.

(a) Find F when $C = 30$ (1)

(b) Find F when $C = 0$ (1)

(c) Find F when $C = -10$ (1)

(d) A temperature of 95 degrees Fahrenheit was recorded. Find it in degrees Celsius. (1)

(4 marks)

5 A formula for the number of diagonals in a polygon with n sides is $D = \dfrac{n(n-3)}{2}$.

(a) Find D when $n = 4$ (1)

(b) Find D when $n = 5$ (1)

(c) Find D when $n = 6$ (1)

(d) Find D when $n = 3$, and explain what your answer means (2)

(5 marks)

6 Two formulas are suggested for the cost C of hiring a car for d days, where the company charges $60{,}000$ shillings a day and a fixed $25{,}000$ for insurance.

$C = 60000d + 25000$ $\qquad$ $C = 85000d$

(a) Work out both formulas for $d = 1$ (2)

(b) Work out both formulas for $d = 4$ (2)

(c) Which formula is correct, and explain what the other one does wrong (2)

(6 marks)