Write the formula, then the values, then the working. **Units matter.**

1 A phone plan costs $B = 100m + 20000$ shillings a month, where m is the number of minutes of calls.

(a) Find the bill for 50 minutes of calls (1)

(b) Find the bill for 120 minutes of calls (1)

(c) Find the bill for a month with no calls at all (1)

(d) Explain why the answer to (c) is not zero (2)

(5 marks)

2 A rectangle has perimeter $P = 2l + 2w$ centimetres.

(a) Find P when $l = 15$ and $w = 8$ (1)

(b) Find P when $l = 20$ and $w = 11$ (1)

(c) Another formula for the same perimeter is $P = 2(l + w)$. Use it to check your answer to (a) (2)

(4 marks)

3 The time to travel 128 km at an average speed of s km/h is $T = \dfrac{128}{s}$ hours.

(a) Find T when $s = 80$ (1)

(b) Find T when $s = 40$ (1)

(c) Find T when $s = 64$ (1)

(d) What happens to the time when the speed is halved? Use your answers to (a) and (b). (2)

(5 marks)

4 The cost of hiring a hall is $C = 50000d + 200000$ shillings for d days.

(a) Find the cost of hiring the hall for 3 days (1)

(b) Find the cost of hiring the hall for 1 week (1)

(c) Which is cheaper: hiring for 4 days once, or hiring for 2 days twice? Show your working. (2)

(5 marks)

5 A formula for converting a temperature in degrees Celsius to degrees Fahrenheit is $F = 1.8C + 32$.

(a) Find F when $C = 100$ (1)

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

(c) Find F when $C = 25$ (1)

(d) A pupil says that 0 degrees Celsius must be 0 degrees Fahrenheit. Use your answer to (b) to explain why not. (2)

(5 marks)

6 A tailor charges $C = 2000m + 5000$ shillings to make a garment using m metres of cloth. A customer paid $19{,}000$ shillings.

(a) How much of the payment was the fixed charge? (1)

(b) How much was paid for the cloth? (1)

(c) How many metres of cloth were used? (1)

(d) Check your answer by putting it into the formula (2)

(5 marks)