1 Write each situation as a linear function. Say what x and y stand for.

(a) A plumber charges $18{,}000$ shillings an hour plus $30{,}000$ to come out (2)

(b) A phone plan costs 150 shillings a minute plus $12{,}000$ a month (2)

(c) A candle is 30 cm tall and burns down 2 cm an hour (2)

(6 marks)

2 Describe a situation that each function could represent. Say what x counts, what m is per, and what c is for.

(a) $y = 400x + 3000$ (2)

(b) $y = 50 - 4x$ (2)

(4 marks)

3 A water tank holds 200 litres and leaks 8 litres an hour.

(a) Write the function for the litres y left after x hours (1)

(b) How much is left after 9 hours? (1)

(c) After how many hours is the tank empty? (1)

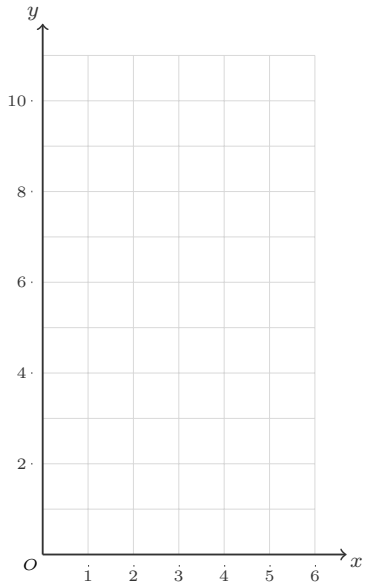
(d) Explain why the function stops being useful after that (2)

(5 marks)

4 Complete the table for $y = 10 - 2x$ and plot the points.

(a) $x = 0, 1, 2, 3, 4, 5$: write the six values of y (2)

(b) Plot the six points. **Do not join them up.** (6)



(8 marks)

5 Two pupils write functions for the same situation: a bus fare of 300 shillings a kilometre with a $1{,}200$ shilling booking fee. Ojok writes $y = 300x + 1200$. Kemi writes $y = 1200 + 300x$.

(a) Work out both functions when $x = 5$ (2)

(b) Are both pupils right? Explain. (2)

(c) Write down m and c for Kemi's version (1)

(5 marks)