1 Here are three rules. **Decide whether each one is a function** and give a reason.

(a) Take a number and double it (2)

(b) Take a number and say any number larger than it (2)

(c) Take a number and square it (2)

(6 marks)

2 Complete the table for $y = \frac{x}{2} + 3$.

(a) $x = 0$ (1)

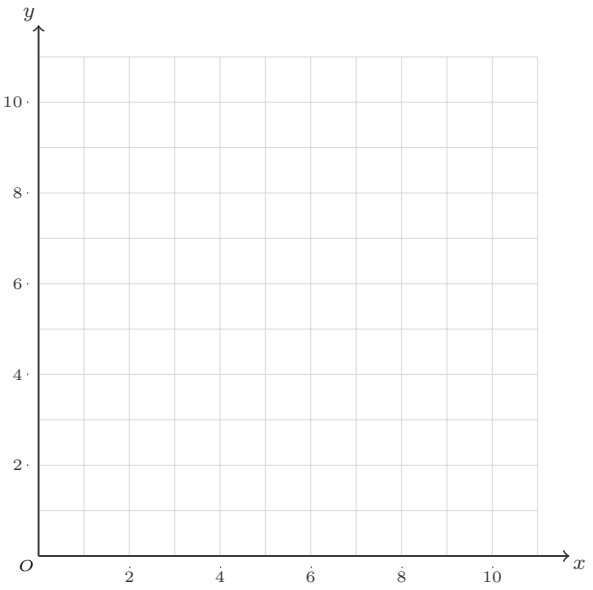
(b) $x = 4$ (1)

(c) $x = 10$ (1)

(d) $x = 1$ (1)

(4 marks)

3 Plot the ordered pairs $(0, 3)$, $(2, 4)$, $(4, 5)$, $(6, 6)$ and $(10, 8)$ on the grid.



(5 marks)

4 Two machines are described below.

Machine A: multiply by 2, then add 6.
Machine B: add 3, then multiply by 2.

(a) What comes out of each machine when 5 goes in? (2)

(b) What comes out of each when 0 goes in? (2)

(c) Write each machine as an equation (2)

(d) Show that the two machines always do the same thing (2)

(8 marks)

5 A machine is described by $y = 4x - 1$.

(a) Complete the ordered pairs: $(2,\ ____)$ and $(____,\ 19)$ (2)

(b) Which of the two was harder, and why? (2)

(4 marks)

6 **Extension.** A function is $y = 2x + 1$.

(a) Find y when $x = 3$ (1)

(b) Find y when $x = -3$ (1)

(c) Find y when $x = \frac{1}{2}$ (1)

(d) A pupil says every output of this function is odd. Use your answers to explain whether they are right (2)

(5 marks)