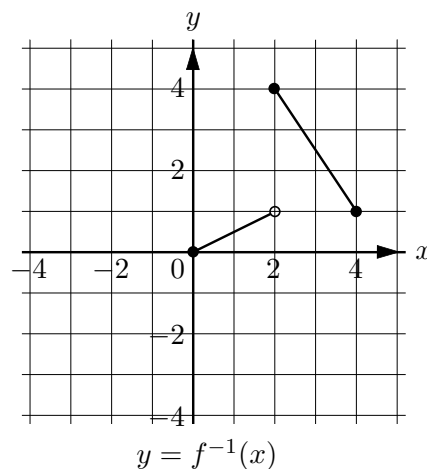
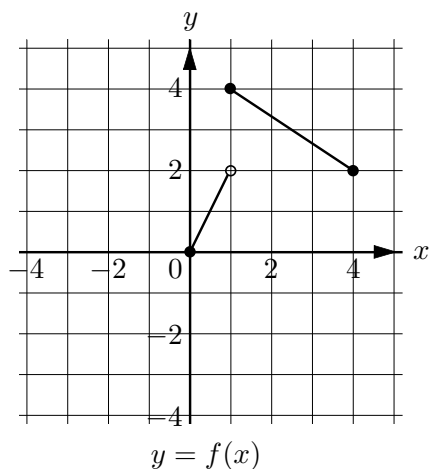


5. [8 points] The graph of the function  $f$  defined on the domain  $[0, 4]$  is drawn below.



- a. [4 points] Using the axis above (labelled “ $y = f^{-1}(x)$ ”), sketch the graph  $y = f^{-1}(x)$ .
- b. [4 points] Write down a piecewise formula for the function  $f$ .

*Solution:*

$$f(x) = \begin{cases} 2x & 0 \leq x < 1. \\ 4 - \frac{2}{3}(x - 1) & 1 \leq x \leq 4. \end{cases}$$

6. [6 points] Let  $g$  be a function defined on the real line. Some values of  $g$  are shown below.

$x$	0	1	2	3
$g(x)$	0	5	6	7

- a. [2 points] If  $g$  were an odd function, what should the value of  $g(-1)$  be?

*Solution:*  $g(-1) = -g(1) = -5$

- b. [2 points] If  $g$  were a periodic function of period 5, what should the value of  $g(-3)$  be?

*Solution:*  $g(-3) = g(-3 + 5) = g(2) = 6$

- c. [2 points] Let  $k$  be the function defined by  $k(x) = g(2x + 5)$ . What is  $k(-1)$ ?

*Solution:*  $k(-1) = g(2(-1) + 5) = g(3) = 7$ .