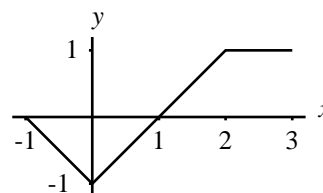


1. A graph of the function  $g$  is shown at right.  
Find  $g \circ g(2)$ .



Solution: From the graph, we estimate that  $g(2) = 1$ , so  $g \circ g(2) = g(g(2)) = g(1) = 0$ .

2. Given that  $f(x) = \frac{2x-1}{x+5}$ , find a formula for  $f^{-1}(x)$ .

Solution: We write

$$x = \frac{2y-1}{y+5}$$

and solve for  $y$ , getting

$$\begin{aligned} xy + 5x &= 2y - 1 \\ xy - 2y &= -1 - 5x \\ y(x - 2) &= -(5x + 1) \\ y &= -\frac{5x + 1}{x - 2} \end{aligned}$$

$$\text{So } f^{-1}(x) = -\frac{5x + 1}{x - 2}.$$

3. Solve the equation  $\log_2(1 - 4x) + 2 = 0$  for  $x$ .

We write

$$\log_2(1 - 4x) = -2$$

and raise 2 to both sides to get

$$1 - 4x = \frac{1}{4}$$

The solution is  $x = \frac{3}{16}$ .