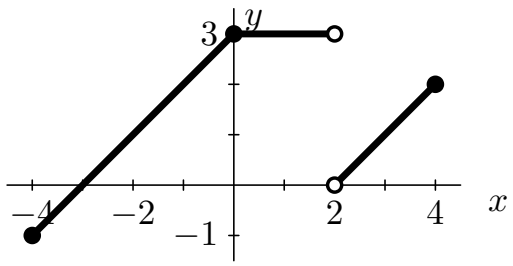
. 5 1. Find a formula for the function $y = f(x)$ with the following graph:



Solution. One formula is

$$f(x) = \begin{cases} x+3 & -4 \le x \le 0, \\ 3 & 0 \le x < 2, \\ x-2 & 2 < x < 4. \end{cases}$$

. 5 2. Suppose the graph of $x^2 + y^2 = 9$ is shifted up 2 and left 1. Give an equation of the shifted graph and sketch the original and the shifted graphs on the axes below. Clearly indicate which is which.

Solution. The equation of the shifted graph is $(x+1)^2 + (y-2)^2 = 9$ and the graph is