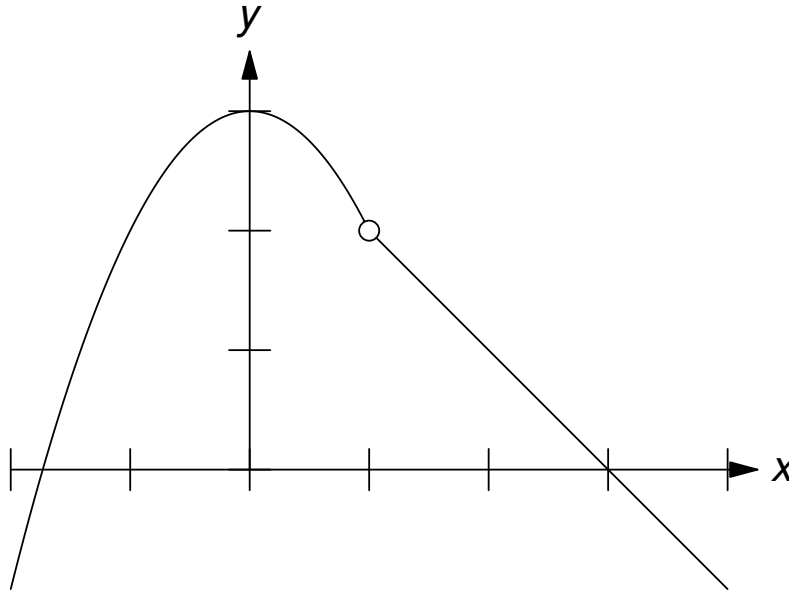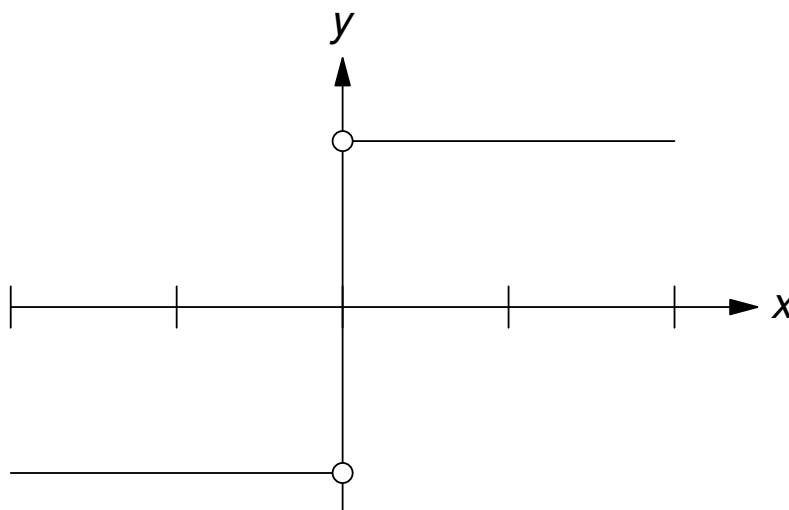# Example

$$f(x) = \begin{cases} 3 - x^2, & x < 1 \\ 3 - x & x > 1, \end{cases} \qquad \text{at } x = 1$$
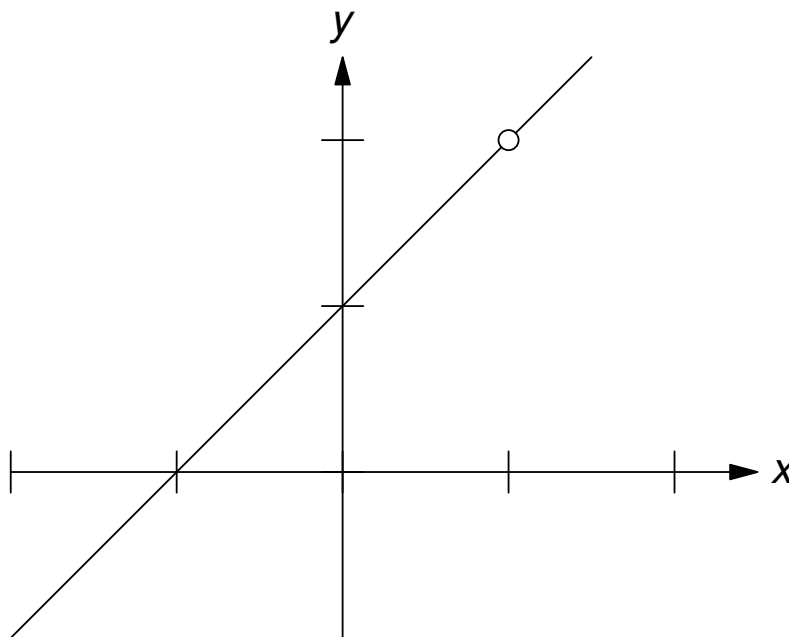

Example

$$f(x) = \frac{|x|}{x}, \qquad \text{at } x = 0$$
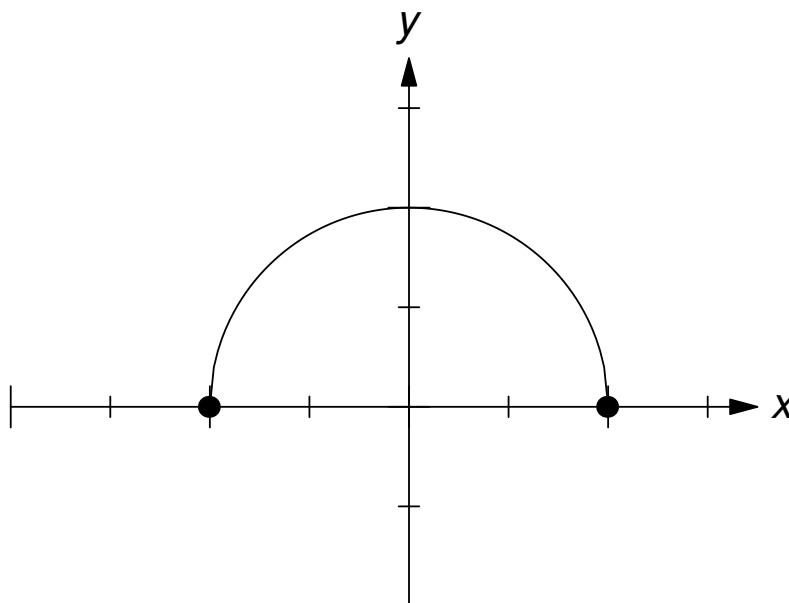
Example

$$f(x) = \frac{x^2 - 1}{x - 1}, \qquad \text{at } x = 1$$

Example

$$f(x) = \sqrt{1 - x^2}$$

Example
Continuity

Find all the values of x where the following function is discontinuous.

$$f(x) = \begin{cases} 2, & x < 2 \\ -x + 4, & 2 \leq x \leq 5 \\ -1, & x > 5 \end{cases}$$

Example
Continuity

Find all the values of the constant k for which the function below is continuous.

$$f(x) = \begin{cases} x^3 + k, & x \leq 3 \\ kx - 5, & x > 3 \end{cases}$$