

1.1 - Four Ways to Represent a Function

1.1a

Ways to represent a function

Exercises:

Find the domain of the function.

$$f(x) = \sqrt{5 - x} + \sqrt{x + 3}$$

$$g(u) = \frac{u + 1}{1 + \frac{1}{u+1}}$$

1.1b

Exercise:

Sketch the graph of the piecewise-defined function and give its domain.

$$f(x) = \begin{cases} 3 - \frac{1}{2}x, & x < 2 \\ 2x - 5, & x \geq 2 \end{cases}$$

The absolute value function as a piecewise-defined function

Exercise:

Express $g(x) = |x - 2|$ as a piecewise-defined function.

1.1c

Exercises:

Find an expression for the function that is the line segment joining $(-5, 10)$ and $(7, -10)$.

Find a formula for the described function and state its domain.

A rectangle has an area 16m^2 . Express the perimeter of the rectangle as a function of the length of one of its sides.

1.1d

Difference quotients

$$\frac{f(b) - f(a)}{b - a}$$

$$\frac{f(a + h) - f(a)}{h}$$

1.1e

Exercises:

Evaluate the difference quotient $\frac{f(a + h) - f(a)}{h}$ for the function.

$$f(x) = x^3$$

$$f(x) = \frac{x + 3}{x + 1}$$