

Refer to the given functions to evaluate.

$$\begin{cases} f(x) = \sqrt{x+3} - x + 1 \\ g(x) = x^2 - 1 \\ h(x) = x^2 + \frac{1}{x} + 2 \end{cases}$$

1) $f(0)$

2) $f(1)$

3) $g(\sqrt{2})$

4) $f(-2)$

5) $h(3)$

6) $h(-4)$

7) $g(0)$

8) $g(x-3)$

9) $h(0)$

10) $h(-x)$

Determine the domain of each function.

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

12) $g(x) = \frac{1}{2x-3} + 1$

13) $g(u) = \frac{u^2+1}{u^2-u-6}$

14) $h(x) = \sqrt{x-16}$

15) $m(c) = \sqrt{c} + 2 + \frac{5}{c-1}$

16) $j(x) = \frac{-x^2+1}{(x+2)(x-3)}$

Compute and simplify using the Difference Quotient.

17) $f(x) = x + 1$

18) $f(x) = 3x + 7$

19) $f(x) = x - x^2$

20) $f(x) = \sqrt{x}$