

Function Review

For each function, identify the domain.

1) $f(x) = \frac{2x-4}{x^2-4}$

2) $f(x) = \frac{x^3 - x^2 - 6x}{4x^2 + 4x}$

3) $g(x) = \frac{1}{3}\sqrt{x-3}$

4) $g(x) = \frac{1}{2}\sqrt{-(x-2)}$

Find the inverse of each function.

5) $g(x) = \sqrt[3]{x-2} - 2$

6) $f(x) = \frac{4x-1}{x+2}$

7) $y = 5^x - 7$

8) $y = \log_x(2+4) - 5$

Perform the indicated operation.

9) $f(a) = 2a + 4$
 $g(a) = 4a + 4$
Find $\left(\frac{f}{g}\right)(7)$

10) $h(x) = 4x - 1$
 $g(x) = 2x + 1$
Find $h(-2x) + g(-2x)$

11) $g(x) = -4x$
 $h(x) = x^2 - 1 + x$
Find $g(h(a-3))$

12) $g(a) = a^3 + 2$
Find $(g \circ g)(a)$

Solve each equation. Remember to check for extraneous solutions.

$$13) \frac{6}{n^2 + n} = \frac{5}{n} - \frac{1}{n^2 + n}$$

$$14) \frac{2}{x^2 - 2x - 3} + \frac{6}{x - 3} = \frac{1}{x - 3}$$

$$15) 1 = \frac{k - 1}{k + 2} - \frac{2k - 4}{k^2 + 2k}$$

$$16) \frac{3}{x + 2} + \frac{x - 4}{x} = \frac{4}{x^2 + 2x}$$

Solve each equation. Round your answers to the nearest ten-thousandth.

$$17) -10 \cdot 12^{-5p} - 5 = -63$$

$$18) -8e^{6 - 6n} = -17$$

Solve each equation.

$$19) \log_5 4n = \log_5 (5n - 10)$$

$$20) \log_5 (70 + 3n^2) = \log_5 (4n^2 + 3n)$$

$$21) \log_8 (x^2 + 7) - \log_8 2 = 1$$

$$22) \log_6 (x + 1) + \log_6 8 = 1$$

Describe the transformations necessary to transform the graph of $f(x)$ into that of $g(x)$.

$$23) \begin{aligned} f(x) &= \sqrt{x} \\ g(x) &= 4\sqrt{-(x + 2)} + 2 \end{aligned}$$

$$24) \begin{aligned} f(x) &= \frac{1}{x} \\ g(x) &= -\frac{1}{x} + 1 \end{aligned}$$

$$25) \begin{aligned} f(x) &= |x| \\ g(x) &= -|3x - 3| \end{aligned}$$

$$26) \begin{aligned} f(x) &= |x| \\ g(x) &= \frac{1}{2} \cdot |-x| - 2 \end{aligned}$$