

Please do all your work on a separate piece of paper. Please show all setup and work!

Find all the real values of x such that $f(x) = 0$

1. $f(x) = x^2 - 8x + 15$

Write the linear function that has the indicated function values.

2. $f(-10) = 12, f(16) = -1$

Describe the transformations that occur in the function.

Then sketch its graph.

3. $f(x) = x^3 + 7$

4. $f(x) = 6 - |x + 5|$

Write an equation for the function that is described by the given characteristics.

5. The shape of $f(x) = x^2$, but moved 2 units to the right and 8 units down.

6. The shape of $f(x) = |x|$, but moved 1 unit to the left and 7 units down.

7. The shape of $f(x) = \sqrt{x}$, but moved 9 units down and reflected in both the x -axis and the y -axis.

8. The shape of $f(x) = x^2$, with vertex at the origin but goes through the point $(1, -3)$.

Find (a) $(f + g)(x)$, (b) $(f - g)(x)$, (c) $(fg)(x)$, and (d) $\left(\frac{f}{g}\right)(x)$.

9. $f(x) = x + 2, g(x) = x - 2$

10. $f(x) = x^2 + 6, g(x) = \sqrt{1 - x}$

Evaluate the indicated function for $f(x) = x^2 + 1$ and $g(x) = x - 4$

11. $(f + g)(2)$

12. $(fg)(6)$

13. $\left(\frac{f}{g}\right)(0)$

Find (a) $f \circ g$, (b) $g \circ f$, (c) $f \circ f$.

14. $f(x) = x^2, g(x) = x - 1$

15. $f(x) = 3x + 5, g(x) = 5 - x$

Find (a) $f \circ g$, (b) $g \circ f$, Identify the domain of each function and each composite function (A total of 4 domains)

16. $f(x) = \sqrt{x + 4}, g(x) = x^2$

17. $f(x) = \sqrt{x}, g(x) = 2x - 3$