

## Function Operations

### Examples

1. Given  $f(x) = 3x + 4$  and  $g(x) = x^2 - 5x + 2$ , find each part below and the domain for each.

a)  $(f + g)(x)$

b)  $(g - f)(x)$

c)  $(f \cdot g)(x)$

2. Given  $f(x) = 3 - 2x$  and  $g(x) = 2x^2 + 7x - 1$ , find each part below and the domain for each.

a)  $(f + g)(x)$

b)  $(g - f)(x)$

c)  $(f \cdot g)(x)$

3. Given  $f(x) = 3x + 4$  and  $g(x) = x^2 - 5x + 2$ , find each part below and the domain for each.

a)  $(f + g)(2)$

b)  $(g - f)(-1)$

c)  $(f \cdot g)(1)$

4. Given  $f(x) = x - 7$  and  $g(x) = 2x^2 - 13x - 7$ , find  $\left(\frac{f}{g}\right)(x)$  and the domain of the quotient.

5. Given  $f(x) = x + 3$  and  $g(x) = x^2 - 3x - 18$ , find  $\left(\frac{g}{f}\right)(x)$  and the domain of the quotient.

6. Given  $f(x) = x^2$  and  $g(x) = x + 1$ , find  $f(g(3))$

7. Given  $f(x) = x^2$  and  $g(x) = x + 1$ , find  $f(g(x))$

8. Given  $f(x) = 2x - 1$  and  $g(x) = 3x$ , find  $f(g(2))$

9. Given  $f(x) = 4x^2 + 7$  and  $g(x) = 6x + 9$ , find  $f(g(x))$  and  $g(f(x))$