

Combinations of Functions

We can perform operation on functions:

Addition: $(f + g)(x) = f(x) + g(x)$

Subtraction: $(f - g)(x) = f(x) - g(x)$

Multiplication: $(f \cdot g)(x) = f(x) \cdot g(x)$

Division: $\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}, \quad g(x) \neq 0$ **Why this restriction?**

Let $f(x) = 3x^2 + x + 4$ and $g(x) = x - 1$.

Find $(f + g)(x)$, $(f - g)(x)$, $(f \cdot g)(x)$, $\left(\frac{f}{g}\right)(x)$

Let $f(x) = x^2 - 3x + 1$ and $g(x) = x - 1$

Find $(f + g)(3)$

Find $(f - g)(-1)$

Find $(f \cdot g)(2)$

Find $\left(\frac{f}{g}\right)(-2)$

Find $2f(3) - 4g(2)$

Find $\left(\frac{g(-2)}{f(-1)}\right)^3$