

Name: _____

Date: _____

Combining Functions

Examples:

Given $f(x) = 5x^2 - 9x + 2$ $g(x) = x^2 + 3x - 8$ $h(x) = -2x^2 + 1$ and $k(x) = 4x - 3$

1. Find $4f(x) + 3g(x)$

$$4(5x^2 - 9x + 2) + 3(x^2 + 3x - 8)$$

$$20x^2 - 36x + 8 + 3x^2 + 9x - 24$$

$$23x^2 - 27x - 16$$

2. Find $h(x) - f(x)$ or $(h - f)(x)$

$$(-2x^2 + 1) - (5x^2 - 9x + 2)$$

$$-7x^2 + 9x - 1$$

3. Find $h(x) \cdot k(x)$ or $(h \cdot k)(x)$

$$(-2x^2 + 1)(4x - 3)$$

$$-8x^3 + 6x^2 + 4x - 3$$

4. Find $(h \div g)(x)$ or $h(x) \div g(x)$

$$\frac{-2x^2 + 1}{x^2 + 3x - 8}$$

5. Find $5f(x) + 7g(x)$

$$5(5x^2 - 9x + 2) + 7(x^2 + 3x - 8)$$

$$25x^2 - 45x + 10 + 7x^2 + 21x - 56$$

$$32x^2 - 24x - 46$$

6. Find $f(x) \cdot 2k(x)$

$$(5x^2 - 9x + 2) \cdot 2(4x - 3)$$

$$(5x^2 - 9x + 2) \cdot (8x - 6)$$

$$40x^3 - 30x^2 - 72x^2 + 54x + 16x - 12$$

$$40x^3 - 102x^2 + 70x - 12$$

7. Find $h(2) - f(-1)$

$$h(2) = -2(2)^2 + 1 = -7$$

$$f(-1) = 5(-1)^2 - 9(-1) + 2 = 16$$

$$h(2) - f(-1)$$

$$(-7) - (16)$$

$$-23$$

8. Find $3f(x) \cdot h(x)$

$$3(5x^2 - 9x + 2) \cdot (-2x^2 + 1)$$