

Name: key

Date: _____

Combining Functions and Composition of Functions Practice

Given the functions $f(x) = 2x^2 + 3x - 5$ and $g(x) = x^2 + 5x$ and $h(x) = 3x^2$

1. Find $h(x) \cdot g(x)$

$$3x^4 + 15x^3$$

2. Find $h(x) + g(x) - f(x)$

$$2x^2 + 2x + 5$$

3. Find $2g(x) \cdot f(x)$

$$4x^4 + 26x^3 + 20x^2 - 50x$$

4. Find $3f(x) - g(x)$

$$5x^2 + 4x - 15$$

5. Find $-4h(x) + g(x)$

$$-11x^2 + 5x$$

6. Find $g(-2) - 3h(4)$

$$-150$$

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

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

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

8. Find $h(x) \cdot k(x)$

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

9. Find $h(3) + g(-4)$

$$-21$$

10. Find $k(x)^2$

$$16x^2 - 24x + 9$$

Let $f(x) = 2x - 1$, $g(x) = 3x$, and $h(x) = x^2 + 1$. Compute the following.

11. $f(g(-3))$

$$-19$$

12. $f \circ h(7)$

$$99$$

13. $h \circ g \circ f(5)$

$$730$$

14. $f(x+1)$

$$2x+1$$

15. $g(3a)$

$$9a$$

16. $h(x-2)$

$$x^2 - 4x + 5$$

Let $f(x) = -3x + 7$ and $g(x) = 2x^2 - 8$. Compute the following.

17. $(f \circ g)(x)$

$$-6x^2 + 31$$

18. $g(f(x))$

$$18x^2 - 84x + 90$$

19. Find $(g \circ g)(x)$

$$8x^4 - 64x^2 + 120$$

20. $f \circ g \circ f(4)$

$$-119$$