

Name: _____ Hour: _____

4.8 Composition and Combinations of Functions

Find $(f \circ g)(x)$ of the following functions:

1. $f(x) = 2x - 3$, $g(x) = 3x$

2. $f(x) = \frac{1}{2}x - 3$, $g(x) = \frac{1}{4}x$

Find $(g \circ f)(x)$ of the following functions:

3. $f(x) = x^2$, $g(x) = 5x$

4. $f(x) = -3x + 3$, $g(x) = 6x$

Given the following functions, find each composite function value.

$$f(x) = -\frac{1}{2}x + 4$$

$$g(x) = x^2 - 1$$

$$h(x) = 2x + 5$$

5. $(h \circ g)(-1)$

6. $(f \circ g)(-6)$

7. $(g \circ g)(-3)$

8. $g(f(-6))$

9. $(h \circ f)(5)$

10. $(h \circ h)\left(\frac{1}{2}\right)$

11. $(f \circ f)(2)$

12. $f(g(x))$

13. $(f \circ h)(1)$

Given: $f(x) = 2x - 5$

$g(x) = 3x^2$

$h(x) = \frac{3x-1}{2}$

$k(x) = x^2 - 3x + 2$

Find the following:

14. $f(-4)$

15. $(f \circ g)(-1)$

16. $(g+k)(2)$

17. $(k-f)(x)$

18. $(f \cdot g)(6)$

19. $f(g(x))$

20. $\left(\frac{g}{k}\right)(0)$

21. $(h \circ k)(-2)$

22. $\frac{f(1)+k(-1)}{3}$

23. $(f+k)(x)$

24. $(k \circ g)(x)$

25. $(h+g)(1)$

26. $\frac{(f-k)(0)}{2}$

27. $g(h(0))$

28. $\left(\frac{f}{g}\right)(x)$

29. $(g \cdot k)(x)$

30. $\frac{(f \circ k)(0)}{6}$