

1.5

SM3 Combining, Evaluating, and Composition of Functions 2019-2020

Name _____ Date _____ Period _____

Find an algebraic expression for $h(x)$ using the given functions. Simplify if possible.

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

a. $h(x) = (f + g)(x)$

b. $h(x) = (f - g)(x)$

c. $h(x) = (fg)(x)$

d. $h(x) = \left(\frac{f}{g}\right)(x)$

2. $f(x) = \frac{1}{x} + 1$ and $g(x) = 4x$

a. $h(x) = (f + g)(x)$

b. $h(x) = (f - g)(x)$

c. $h(x) = (fg)(x)$

d. $h(x) = \left(\frac{f}{g}\right)(x)$

Evaluate each of the following using the given function. **SHOW WORK!**

Let $f(x) = 2x - 1$, $g(x) = \sqrt{x + 5}$, and $h(x) = \frac{x}{x - 3}$

3. $f(1) - g(4)$

4. $2f(-3) - f(5)$

5. $\frac{f(1)}{g(-1)}$

6. $g(4) \cdot h(6)$

Let $f(x) = x^2 + 2$, $g(x) = 3\sqrt{x + 1}$, $h(x) = 3^{(x-2)}$, and $k(x) = \frac{2x}{x-3}$

7. $\frac{f(-2)}{3g(0)}$

8. $f\left(\frac{\pi}{6}\right) + f(-3)$

9. $(f - g)(4)$

10. $(f \cdot g)(2)$

Find the indicated composition function, using the given functions. Show work!

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

a) $h(x) = (f \circ g)(x)$

b) $h(x) = (g \circ f)(x)$

c) $h(x) = (f \circ f)(x)$

12. $f(x) = x^2 - 1$ $g(x) = \frac{1}{x-1}$

a) $h(x) = (f \circ g)(x)$

b) $h(x) = (g \circ f)(x)$

c) $h(x) = (g \circ g)(x)$