Name_____

Function Operations

Date_____ Period____

Review T4

Perform the indicated operation.

1) $g(n) = n^2 + 4 + 2n$
$h(n) = -3n + 2$
Find $(g \cdot h)(1)$

2) $f(x) = 4x - 3$
$g(x) = x^3 + 2x$
Find $(f - g)(4)$

3) $h(x) = 3x + 3$
$g(x) = -4x + 1$
Find $(h + g)(10)$

4) $g(a) = 3a + 2$
$f(a) = 2a - 4$
Find $\left(\frac{g}{f}\right)(3)$

5) $g(x) = 2x - 5$
$h(x) = 4x + 5$
Find $g(3) - h(3)$

6) $g(a) = 2a - 1$
$h(a) = 3a - 3$
Find $(g \cdot h)(-4)$

7) $g(t) = t^2 + 3$
$h(t) = 4t - 3$
Find $(g \cdot h)(-1)$

8) $g(n) = 3n + 2$
$f(n) = 2n^2 + 5$
Find $g(f(2))$

9) $g(x) = -x^2 - 1 - 2x$
$f(x) = x + 5$
Find $(g - f)(x)$

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

11) $g(a) = -3a - 3$
$f(a) = a^2 + 5$
Find $(g - f)(a)$

12) $h(t) = 2t + 1$
$g(t) = 2t + 2$
Find $(h - g)(t)$

Review T4

Composition of Functions

Given $f(x) = -2x + 1$, $g(x) = x^2$, and $h(x) = -\frac{1}{2}x + \frac{1}{2}$, evaluate the following:

1. $f(-6)$
2. $g(-3)$
3. $h(4)$
4. $f[g(2)]$
5. $h[g(8)]$
6. $(g \circ f)(5)$
7. $(g \circ h)(7)$
8. $f[g(c)]$
9. $f[h(5)]$
10. $h[f(r)]$
11. $h[g[f(3)]]$
12. $(f \circ g \circ h)(3)$

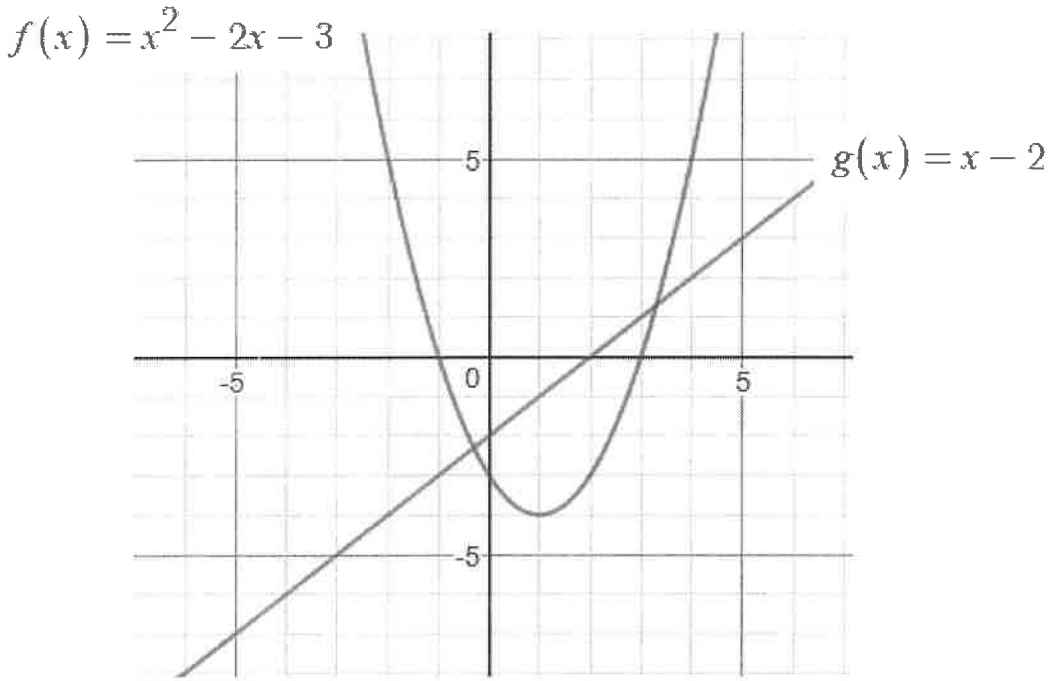
Given $(x) = 2x^2 + 4$, $(x) = \sqrt{x - 4}$, and $h(x) = 4x - 2$, evaluate the following:

13. $f(g(x))$
14. $g(f(x))$
15. $f(h(x))$
16. $g(h(x))$

Review T4

More Composition of Functions

Use the graph of $f(x)$ *and* $g(x)$ to find the composition of functions.



1. Find
   a. $f(g(x))$
   b. $g(f(x))$

i) $f(x) = 5$

2. Evaluate
   a. $f(g(2))$
   b. $[f \circ g](0)$

j) $f(x) = -2$

   c. $g(f(2))$
   d. $[g \circ f](-1)$

k) $g(x) = -5$

   e. $g(g(4))$
   f. $[f \circ f](3)$

l) $g(x) = 2$

   g. $f\left(g(f(1))\right)$
   h. $g(f(g(0))$

m) $f(x) = 0$