Algebra 2 – Function Notation, Operations, and Composition Worksheet

Name: Key **Hour:** _____

Use the following functions to answer the questions below.

$f(x) = 3x + 5$, $g(x) = x^2$, $k(x) = -x - 8$, $m(x) = 5x + 1$

1. Evaluate $f(-2)$.

$f(-2) = 3(-2)+5$
$= -6+5$
$= -1$

2. Evaluate $k(6)$.

$k(6) = -(6) - 8$
$= -6 - 8$
$= -14$

3. Evaluate $m(p-2)$.

$m(p-2) = 5(p-2)+1$
$= 5p - 10 + 1$
$= 5p - 9$

4. Evaluate $g(2x)$.

$g(2x) = (2x)^2$
$= 2x \cdot 2x$
$= 4x^2$

5. Evaluate $k(x^2+1)$.

$k(x^2+1) = -(x^2+1) - 8$
$= -x^2 - 1 - 8$
$= -x^2 - 9$

6. Evaluate $f(x) + k(x)$.

$3x + 5 + -x - 8$

$2x - 3$

7. Evaluate $m(x) - f(x)$.

$5x + 1 - (3x + 5)$
$5x + 1 - 3x - 5$
$2x - 4$

8. Evaluate $(g \cdot f)(x)$.

$x^2(3x + 5)$
$3x^3 + 5x^2$

9. Evaluate $f(g(x))$.

$f(g(x)) = f(x^2) = 3(x^2) + 5$
$= 3x^2 + 5$

10. Evaluate $k(m(x))$.

$k(m(x)) = k(5x+1) = -(5x+1) - 8$
$= -5x - 1 - 8$
$= -5x - 9$

11. Evaluate $g(m(x))$.

$g(m(x)) = g(5x+1) = (5x+1)^2$
$= (5x+1)(5x+1)$
$= 25x^2 + 5x + 5x + 1$
$= 25x^2 + 10x + 1$

12. Evaluate $k(g(x))$.

$k(g(x)) = k(x^2) = -x^2 - 8$