Name:_____Class:____Date_____

PreAP Algebra 2 Operations w/Functions AND Composition of Functions

Find $(f+g)(x)$, $(f-g)(x)$, and $(fg)(x)$. Give the domain of each new function.

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

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

Find $\left(\frac{f}{g}\right)(x)$ and $\left(\frac{g}{f}\right)(x)$. Give the domain of each new function.

3. $f(x) = \sqrt{x+3}$
   $g(x) = x^2$

4. $f(x) = \sqrt{x-2}$
   $g(x) = \sqrt{x+4}$

5. $f(x) = x^2$
   $g(x) = \sqrt{1-x^2}$

Find $f\big(g(3)\big)$ and $g\big(f(2)\big)$ for each problem below. (before you ask, these are values, so there is no domain to give!)

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

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

8. $f(x) = x^2 + 4$
   $g(x) = \sqrt{x+1}$

Find f(g(x)) and g(f(x)). State the domain of each composite function.

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

10. $f(x) = 2x + 1$
    $g(x) = \sqrt{x}$

11. $f(x) = 3x + 4$
    $g(x) = \sqrt{x+2}$

12. $f(x) = \frac{1}{x}$
    $g(x) = 2x + 3$