Pre-AP PreCalculus **Name**_____
WS Algebra of Functions 2
Fall 2018 **Date**_____ **Per**_____

Show all of your work on your own paper. Sketch the graphs on your own paper, or you may use graph paper.

x	2	3	4	5
$f(x)$	0	1	2	3

x	1	2	3	4
$g(x)$	1	2	4	8

Using the tables above, evaluate the following:

1. $f \circ g(3)$

2. $g(f(5))$

Graph the following function, and then state its domain and range:

3. $f(x) = \begin{cases} 1-\sqrt{x+2} & x < -2 \\ \frac{1}{2}x+4 & x \geq -2 \end{cases}$

Given that $f(x) = 6x^2 + 3x - 3$ and $g(x) = 6x - 3$ find the following:

4. $(f+g)(x)$ 5. $(f-g)(x)$ 6. $(f \cdot g)(x)$ 7. $(f/g)(x)$

8. $f(g(-2))$ 9. $g \circ f(3)$ 10. $f(g(x))$ 11. $g \circ f(x)$

12. Find the inverse of $f(x) = 2\sqrt{x} - 3$. State whether or not the inverse is a function, and state its domain and range.

13. Find the inverse of $f(x) = \dfrac{5}{x+2}$. State whether or not the inverse is a function, and state its domain and range.

Determine whether or not the following functions *f* and *g* are inverses by using the composition method.

14. $f(x) = \dfrac{5-2x}{9}$

$g(x) = -\frac{9}{2}x + \frac{5}{2}$