

NAME: _____ Score _____/10

Please **print** your name

1. T **F** The composition of two functions is a real number.
2. T **F** If $f \circ g(x) = x$ then f and g are inverses.
3. **T** F Every linear function with slope $m \neq 0$ has an inverse.
4. If a **horizontal** line may be drawn so that it intersects the graph of a function in more than one point, then the function does not have an inverse.
5. If $f(3) = 8$ and $g(5) = 3$, then $f \circ g(5) = f(g(5)) = f(3) = 8$

6. (2 pts) Compute the rule for $g \circ f$ if the rule for f and g are $f(x) = 3x + 5$ and $g(x) = x^7$. **Neatly show all your work.**

$$g \circ f(x) = g(f(x)) = g(3x + 5) = (3x + 5)^7$$

7. (3 pts) Use the five step method to find the inverse of the function f whose rule is $f(x) = \frac{2x-3}{x+2}$. **Neatly show all your work.**

$$f(x) = \frac{2x-3}{x+2}$$

$$y = \frac{2x-3}{x+2}$$

$$x = \frac{2y-3}{y+2}$$

$$xy + 2x = 2y - 3$$

$$xy - 2y = 2x - 3$$

$$y(x-2) = 2x-3$$

$$y = \frac{2x-3}{x-2}$$

$$f^{-1}(x) = \frac{2x-3}{x-2}$$