

NAME: _____ Score _____/10

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

1. If f and g are functions, the rule for the function $f \circ g$ is $f \circ g(x) = f(g(x))$

2. The rule for the function f is $f(x) = x^2 + x + 1$.

The rule for the function g is $g(x) = \frac{x+2}{x}$.

What is the rule for $g \circ f$? Make sure you write the rule as a rule.

$$g \circ f(x) = g(f(x)) = g(x^2 + x + 1) = \frac{(x^2 + x + 1) + 2}{x^2 + x + 1} = \frac{x^2 + x + 3}{x^2 + x + 1}$$

3. The rule for the function f is $f(x) = x - 4$. The rule for the function h is $h(x) = |x - 3|$.

$$\text{Then } h \circ f(2) = h(f(2)) = h(2 - 4) = h(-2) = |(-2) - 3| = |-5| = 5$$