Calculus Name: Date:

0A.1: Some Review Problems

Let $f(x) = 2x + 1$ and $g(x) = 2x^2 + x$. Evaluate and completely simplify the following

1. $f(2) + g(-2)$
2. $f(2a)$
3. $g(2a)$
4. $f(-x)$
5. $g(-x)$
6. $f(2 + a)$
7. $g(2 + a)$
8. $(f - g)(x)$
9. $f(x) \cdot g(x)$
10. $\frac{f(x)}{g(x)}$
11. $f\big(g(x)\big)$
12. $g\big(f(x)\big)$
13. $\frac{1}{x}g(x)$
14. $\frac{f(x+\Delta x)-f(x)}{\Delta x}$
15. $\frac{g(x+\Delta x)-g(x)}{\Delta x}$

16. For each of the following, describe how the graph of the given function is a transformation (translated up/down, left/right, or reflected, or stretched, etc.) of it's parent function $g(x) = 2x^2 + x$. Graph if necessary, but make a hypothesis first.

a. $g(x) + 2$

b. $g(x + 2)$

c. $-g(x)$

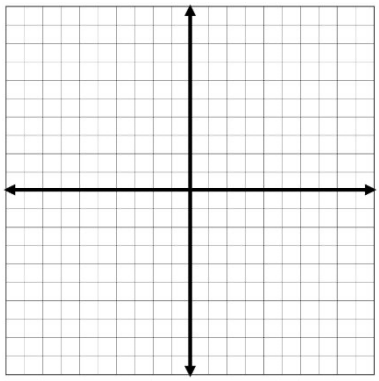
d. $g(-x)$

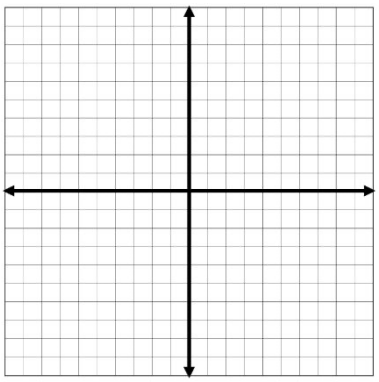
e. $2g(x)$

f. $g(2x)$

17. Graph each pair of functions and describe how the two graphs are different:

a. $f(x) = x + 2$ $\quad$ $g(x) = \frac{x^2+2x}{x}$





b. $f(x) = \frac{x}{x+2}$ $\quad$ $g(x) = \frac{x^2}{x^2+2x}$