

Table # \_\_\_\_\_

Name \_\_\_\_\_

**Study Guide: Chapter 1**

Period \_\_\_\_\_

1. Given  $g(x) = x - 3x^2$ , simplify each function.

(a)  $g(-4)$

(b)  $g(2a)$

2. Given  $f(x) = 2x^2$  and  $g(x) = 5x + 6$ , simplify each function.

(a)  $(f \circ g)(x)$

(b)  $(g \circ f)(x)$

3. Given  $f(x) = \frac{2}{x-3}$  and  $g(x) = x - 4$ , simplify the following.

(a)  $f(x) + g(x)$

(b)  $\frac{g(x)}{f(x)}$

4. Graph:

(a)  $y + 4x \leq 12$

(b)  $x - 2 = 0$

(c)  $-8 < 2x + y < 4$

(d)  $-y > -30x - 90$

5. Find the zeros for  $g(x) = \frac{2}{3}x + 6$ .

6. State the domain and range of the relation  $\{(8, 4), (1, 1), (2, 3), (8, 9), (6, 7)\}$ . Then, state whether the relation is a function and support your answer.

7. Find the equation in standard form of a line through  $(3, 4)$  and  $(4, 6)$ .

8. Find the slope of a line parallel to  $5x - 8y - 4 = 0$ .

9. Find the equation in point-slope form of a line perpendicular to  $-x + 5y = -3$  and passing through the origin.

10. Find the equation in standard form of a line parallel to  $4x - 9y = -23$  and passing through  $(18, -15)$ .

11. Find the first 3 iterates of  $f(x) = x^2 + 1$  using the given initial value  $x_0 = 1$ .

12. State the domain of the following functions.

(a)  $f(x) = \frac{2}{6-x}$

(b)  $g(x) = \frac{x^2}{x^2-5x-14}$

13. Write an equation in slope-intercept form given a point that passes through  $(2, -3)$  and slope of  $-4$ .