Name:

MAC1105 Section 1A26
Exam 4 Review (NOT FOR A GRADE)

Please show all of your work in a NEAT and ORGANIZED fashion.

1. Solve the inequality and write the solution set in interval notation.

$$\frac{x}{x^2 - 3x - 10} \leq 0$$

2. Solve the inequality and write the solution set in interval notation.

$$\left| \frac{1}{2}x + \frac{1}{11} \right| \geq -\frac{4}{13}$$

3. Solve the inequality and write the solution set in interval notation.

$$|-2x - 1| + 7 < 10$$

4. Solve the inequality and write the solution set in interval notation.

$$|x^2 + 4x - 8| < 0$$

5. If the point (a, b) is in quadrant I, in which quadrant is $(b, -a)$?

6. (a) Find the distance between the points $(3, 5)$ and $(-1, 0)$. (b) Find the midpoint of the line segment with endpoints $(3, 5)$ and $(-1, 0)$.

7. Find the coordinates of the other endpoint of the line segment with one endpoint $(-4, 8)$ and midpoint $(7, -2)$.

8. Graph the equation $y = 2x^2 - 2$ by plotting points. (You must plot at least 5 points.)

9. Determine whether the relation defines a function (JUSTIFY your answer), and give the domain and range.
$$\{(-3, 0), (-1, 4), (2, 5), (3, 0)\}$$

10. Determine whether the relation defines a function (JUSTIFY your answer), and give the domain and range.
$$y = x^3 + 6$$

11. Let $f = \{(-3, 0), (-1, 4), (2, 5), (3, 0)\}$. Find $f(-1)$.

12. Let $g(x) = x^2 - 3x + 4$. Find and simplify $g(x^2 + 1)$.

13. Identify the x and y-intercepts of the graph of $y = x^2 + 5x + 4$.

14. Find the slope of the line through the points $(4, 9)$ and $(-1, -7)$ and simplify your answer.

15. Write an equation of the line passing through $(3, 8)$ and $(-1, 2)$ and write the result in standard form. Graph the line.

16. Write an equation of the line satisfying the following conditions and write the result in slope-intercept form. Graph the line.

$\text{slope} = -\dfrac{1}{4}$, passing through $(5, 0)$

17. Write an equation of the line with slope 0 and passing through $(10, -1)$. Graph the line.

18. Determine whether the relation defines a function (JUSTIFY your answer), and give the domain and range.