Name: _____ Section: _____

Worksheet 1: Prerequisites

This worksheet covers some of the basic algebra skills that you will need for Precalculus. If you struggle with this worksheet, you should seek additional support now and throughout the semester in order to succeed in this course. Hand in this worksheet in class on the due date listed on the course webpage. **Show all work that leads to each answer.**

1. Simplify the expression $\dfrac{3x^2 + x}{x}$, or if it cannot be simplified any further, write "simplified."

2. Simplify the expression $\dfrac{3 + 6x}{3 - 6x}$, or if it cannot be simplified any further, write "simplified."

3. Simplify the expression $7^{-1/2} \cdot 7z^{3/2} \left(7z\right)^{-5/2}$, and write your answer in radical form.

4. Perform the given operation and simplify the expression: $\dfrac{3x}{x^2 - x - 2} - \dfrac{2x}{x^2 + x - 6}$.

5. Perform the given operation and simplify the expression: $\dfrac{1 - \dfrac{2}{3x}}{x - \dfrac{4}{9x}}$.

6. Solve the equation, then check your answer(s): $\dfrac{y}{3} + 4 = \dfrac{y}{2}$.

7. Solve the equation, then check your answer(s): $\sqrt{x} = 2 - x$.

8. Solve the equation, then check your answer(s): $(x + 2)^2 = 4$.

9. Solve the equation, then check your answer(s): $\dfrac{3}{x - 3} + \dfrac{5x}{x^2 - 9} = 4$.

10. Solve the equation, then check your answer(s): $|4x + 1| = 3x$.

11. Solve the inequality, then graph the solution on a number line: $4 > 2 - x > 3$.

12. Solve the inequality, then graph the solution on a number line: $3 < \dfrac{x - 2}{3} \leq 5$.