

Worksheet 1 – Prerequisites

These are basic skills that you will need for Pre-Calculus. If you struggle with this worksheet, you should expect to seek additional support throughout the semester at the Q-Center and during office hours available from your professor and/or your TA. You should be able to simplify the expressions and solve the equations and inequalities. Complete this worksheet and hand in to your TA – they will tell you when it is due. **NO LATE PAPERS WILL BE ACCEPTED.**

Be sure to show all of the work that leads to the answer.

Part1 – Simplify each expression, if it cannot be simplified any further state “simplified”:

1) $\frac{3x^2 + x}{x}$

2) $\frac{3 + 6x}{x}$

3) $\frac{3 + 6x}{3}$

4) $\frac{3 + 6x}{1 + x}$

5) $\frac{3 + 6x}{1 + 2x}$

6) $\frac{3 + 6x}{3 - 6x}$

7) $\frac{3 + 6x}{-3 - 6x}$

8) $\frac{x + y}{y}$

9) $\frac{3a^2 - 2a}{ax}$

Part 2 – Solve each equation.

1) $\frac{y}{3} + 4 = \frac{y}{2}$

2) $\frac{2}{3}x + 3(x - 1) = 8$

$$3) \quad 3 + 2x = 2\left(\frac{3}{2} + x\right)$$

$$4) \quad \frac{1}{x} = \frac{3}{x} + 1$$

$$5) \quad \frac{3}{5}x + 8 = -x + \frac{1}{5}(2 + 8x)$$

$$6) \quad \sqrt{x} = 2 - x$$

$$7) \quad \frac{2x - 1}{x + 2} = \frac{4}{5}$$

$$8) \quad (x + 2)^2 = 4$$

$$9) \quad |4x + 1| = 3$$

$$10) \quad |4x + 1| = 3x$$

$$11) \quad |2 - 2x| = 100$$

$$12) \quad |1 - x| = x$$

Solve and graph your solution on a number line.

13) $x + 5 < 1$

14) $1 - 2x \geq 0$

15) $4 > 2 - x > 3$

16) $3 < \frac{x + 2}{3} \leq 5$