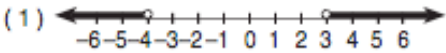
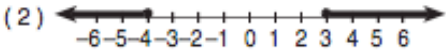
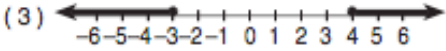
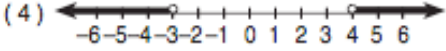


Name: \_\_\_\_\_

**M\$5 Exam 1 Review Sheet**

**Exam 1 will be on Tuesday, September 26, 2006.** The exam will cover all topics taught since the beginning of the semester, including sets of numbers, binary operations and closure, properties of real numbers, inequalities, compound inequalities, absolute value equations and inequalities, factoring polynomials, and quadratic equations and inequalities (solving by factoring or by using the *quadratic formula*). If a problem states to *check*, be sure to show the check. Put a box around your final answer. Graphing calculators, though not required, may be used on the exam, with the following exceptions: TI-89, TI-92, or any calculator with symbolic manipulation abilities.

- An irrational number is a number whose decimal representation is non-terminating and non-repeating. Give another definition of an irrational number.
  - Is  $\frac{22}{7}$  irrational? Explain why or why not.
- Solve and graph the solution set on a number line:  $4 - 5x \leq 29$
- Solve and graph the solution set on a number line:  $(2x + 7 < 7) \wedge (3x + 1 \geq -5)$
- Solve and graph the solution set on a number line:  $(-10x \leq 40) \vee (x - 4 < -9)$
- State the solution set:  $(x > 3) \vee (x \leq 3)$
- Name the property illustrated in the equation  $2(a + b) + g = 2(b + a) + g$ .
- Write an equation that illustrates the associative property of addition.
  - Write an equation that illustrates the multiplicative identity property.
- Factor completely:
  - $8y^4 - 8$
  - $10x^2 - 38x - 8$
  - $4x^2y - 64y^3x + 16x^5y^3$
- Tell whether each set is closed under the given operation. Write either *closed* or *not closed*. If it is not closed, give a counterexample.
  - $\{0, 1, -1\}$  under addition
  - $\{0, 1, -1\}$  under division
  - $\{1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \dots\}$  under multiplication
- Solve and check:  $|6 - 3x| = 7x$
- Solve:  $14x^2 - 56 = 0$ .
- Solve for  $x$  in *simplest radical form*:  $x^2 - 4x = 6$
- Which graph represents the solution set for  $x^2 + x > 12$  ?
  - 
  - 
  - 
  - 
- Solve and graph the solution set on a number line:  $2x^2 > 11x - 14$ .
- Solve and graph the solution set on a number line:  $4 - 3x - x^2 < 0$ .