College Algebra

Test 1

Form A

Spring 2017

Name: _____

Date: _____

READ THESE INSTRUCTIONS CAREFULLY!

- Circle or underline your final written answer.
- Justify your reasoning and show your work.
- If you run out of space, make a note and continue your work on the back of a page.

Algebra Facts

Quadratic Formula

If a, b, and c are real numbers and $a \neq 0$, then the solutions of the equation $ax^2 + bx + c = 0$ are

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Absolute Value

- If $|E| = F$, then either $E = F$ or $E = -F$.
- If $|E| \leq F$, then both $E \leq F$ and $E \geq -F$.
- If $|E| \geq F$, then either $E \geq F$ or $E \leq -F$.

1. (10 pts.) Find all solutions of the following equation.

$$|-3x-20|+17=6$$

2. (10 pts.) Find all solutions of the following inequality.

$$|-5x+3|+6\leq 24$$

3. (10 pts.) Find all solutions of the following equation.

$$\frac{x}{x-5}+5=\frac{5}{x-5}$$

4. (10 pts.) Find all solutions of the following equation.

$$\frac{1}{3} + \frac{1}{x-4} = 1$$

5. (10 pts.) Find all solutions of the following inequality.

$$|-3x-4| + 5 \geq 19$$

6. (10 pts.) Find all solutions of the following equation.

$$2x^2 - 3x - 35 = 0$$

7. (10 pts.)

Find all solutions of the following equation.

$$x^2 + 8x + 4 = 0$$

8. (10 pts.) Find all solutions of the following equation.

$$x^2 - 16x + 63 = 0$$

9. (10 pts.) Find all solutions of the following equation.

$$\frac{x}{x-1} + 5 = \frac{1}{x-1}$$

10. (10 pts.) Find all solutions of the following equation.

$$x^2 - 6x + 8 = 0$$

Bonus. Find all solutions of the following equation.

$$2x^4 - 9x^2 + 10 = 0$$