College Algebra: Review (Test 1)

Solve the following equations.

1. $\dfrac{x}{x-3} + 3 = \dfrac{6}{x-3}$

2. $|5x - 2| + 5 = 18$

3. $-2 - |6x - 4| = |6x - 4| - 2$

4. $|-19x + 13| + 12 = 8$

5. $x^2 - 4x + 3 = 0$

6. $x^2 - 13x + 42 = 0$

7. $2x^2 - 17x + 35 = 0$

8. $3x^2 - 10x - 25 = 0$

9. $x^2 - 6x - 3 = 0$

10. $x^3 - 13x^2 + 40x = 0$

11. $2x^4 + 5x^2 - 7 = 0$

12. $|x^2 - 9x + 21| = 1$

Solve the following inequalities. Give your answers in interval notation.

1. $|-3x + 9| + 6 < 24$

2. $2|2x + 3| + 6 \geq 29$