1. (3 points) Find all solutions (if any) to the following equation:

\[ \frac{2}{x} + \frac{x - 7}{x + 3} = 0 \]

\[ \frac{2(x+3) + x(x-7)}{x(x+3)} = 0 \quad x \neq 0, -3 \]

\[ 2x + 6 + x^2 - 7x = 0 \]

\[ x^2 - 5x + 6 = 0 \]

\[ (x-3)(x-2) = 0 \]

\[ x = 3, 2 \] (both these solutions work in the original equation)

2. (3 points) Solve the following quadratic equation by factoring:

\[ 2x^2 - 5x + 2 = 5 \]

\[ 2x^2 - 5x - 3 = 0 \]

\[ 2x^2 - 6x + x - 3 = 0 \]

\[ 2x(x-3) + (x-3) = 0 \]

\[ (2x+1)(x-3) = 0 \]

\[ x = -\frac{1}{2}, 3 \]

3. (3 points) Solve the following inequality, and graph the solution set:

\[ |5 - 3x| > 10 \]

\[ 5 - 3x > 10 \quad \text{or} \quad 5 - 3x < -10 \]

\[ -3x > 5 \quad \text{or} \quad -3x < -15 \]

\[ x < -\frac{5}{3} \quad \text{or} \quad x > 5 \]

\[ -\frac{5}{3} \quad 0 \quad 5 \]