1. (3 points) Solve the inequality and write the solution set in interval notation.

\[ \frac{1}{x-5} - \frac{1}{x+3} \leq 0 \quad \text{L.C.D.} = (x-5)(x+3) \]

\[ \frac{x+3}{(x-5)(x+3)} - \frac{x-5}{(x-5)(x+3)} \leq 0 \]

\[ \frac{x+3 - x+5}{(x-5)(x+3)} \leq 0 \]

\[ \frac{8}{(x-5)(x+3)} \leq 0 \]

\[ (-3, 5) \]

2. (4 points) Solve the inequality and write the solution set in interval notation.

\[ |4x - 5| > 7 \]

\[ |4x - 5| = 4x - 5 \quad \text{or} \quad -4x + 5 \]

\[ 4x - 5 > 7 \quad -4x + 5 > 7 \]

\[ 4x > 12 \quad -4x > 2 \]

\[ x > 3 \quad x < -\frac{1}{2} \]

\[ (-\infty, -\frac{1}{2}) \cup (3, \infty) \]

3. (3 points) Find the distance between the points \((-3,1)\) and \((2,4)\).

\[ d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2} \]

\[ = \sqrt{(2+3)^2 + (4-1)^2} \]

\[ = \sqrt{5^2 + 3^2} \]

\[ = \sqrt{25 + 9} \]

\[ = \sqrt{34} \]