Directions: Please answer the following questions and make sure your answer are legible. You must show your work to receive credit for your answers. You may not use a calculator (or any other technology) on this quiz. Good Luck.

1. (5 points) Solve the inequality $-5 \leq 4 - 3x \leq 2$, express your answer in interval notation.

   
   $-9 \leq -3x \leq -3$
   
   $-\frac{9}{3} \geq x \geq \frac{-3}{3}$
   
   $[\frac{3}{3}, 3]$

2. (5 points) Solve the inequality $(x - 1)(x + 1) > (x - 3)(x + 4)$, express your answer in interval notation.

   $x^2 - 1 > x^2 + x - 12$
   
   $-x^2$ $-x^2$
   
   $-1 > x - 12$
   
   $11 > x$

3. (5 points) If $-2 < x < 3$ find the largest $a$ and smallest $b$ satisfying $a < -4x < b$.

   $-2 < x < 3$
   
   $-2(-4) > x(-4) > 3(-4)$
   
   $8 > -4x > -12$
   
   $-12 < -4x < 8$
   
   $-3 < -4x < 3$

4. (5 points) Solve the equation $\left| \frac{x}{2} - \frac{1}{3} \right| = 1$.

   $\left| \frac{3x - 2}{6} \right| = 1$
   
   $\frac{3x - 2}{6} = 1$ or $\frac{3x - 2}{6} = -1$
   
   $3x = 8$ or $3x = -4$
   
   $x = \frac{8}{3}$ or $x = -\frac{4}{3}$