$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ **Pre-Calculus 11: Solving Systems Quiz #2**
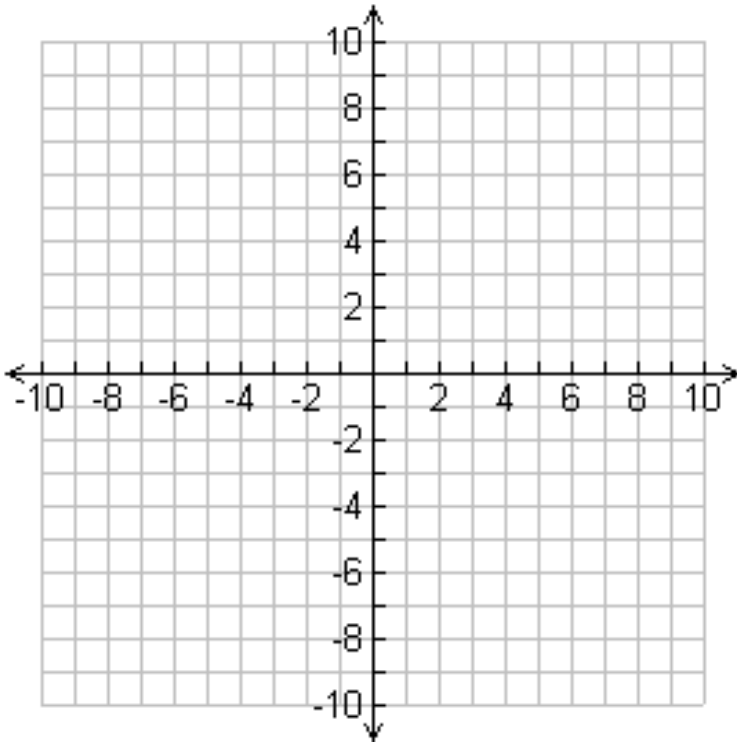
Full credit will only be awarded for all work shown in a neat and organized manner.

1. Solve the following system of inequalities by graphing.
   For parabolas, you only need to graph the vertex and at least 2 points on each side of the vertex

$$y \geq -x^2 + 7x - 12 \qquad 3x - 4y > 16$$

2. Solve. $-18x^2 - 3x + 36 < 0$

3. Find a quadratic inequality whose solution is $-5 \leq x \leq \frac{8}{5}$. Your answer should look like:

    $ax^2 + bx + c \underline{} 0$, where the $\underline{}$ holds an inequality sign ($<$, $>$, $\leq$, or $\geq$). Show all work and explain how you get your answer.

4. For a company to stay in business, their revenue must be larger than their cost. Mr. G is starting a diamond shipping business. The cost, in dollars to ship diamonds is given by: $C = 0.1n^2 - 2n + 15$, where n is the number of kilograms of diamonds shipped each month. The revenue made by shipping diamonds is given by: $R = 4n + 1$. What range of diamond mass can Mr. G ship each month while staying in business?   *(Answer correctly rounded to 2 decimal places)*