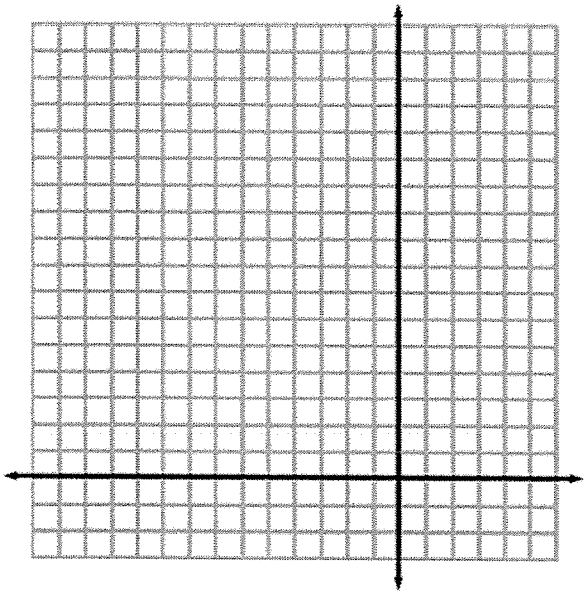
Advanced Algebra II (H) Date _____
Chap 3: Quadratics
Topic: Quadratic Inequalities

Today, we will....
(1) graph quadratic inequalities in two variables
(2) graph a system of quadratic inequalities
(3) solve a quadratic inequality algebraically
(4) solve a quadratic inequality by graphing

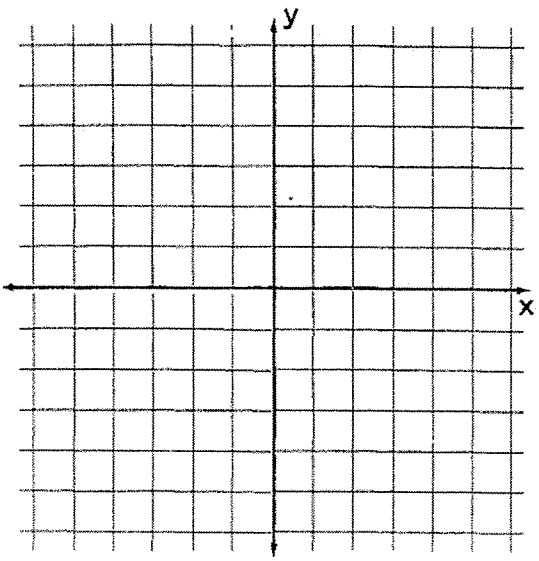
1. Graph quadratic inequalities in two variable

$y < -x^2 - 8x - 2$



2. Solve by graphing a system of inequalities.

$y < -x^2 + 3$
$y \geq x^2 + 2x - 3$



3. Solve a quadratic inequality algebraically

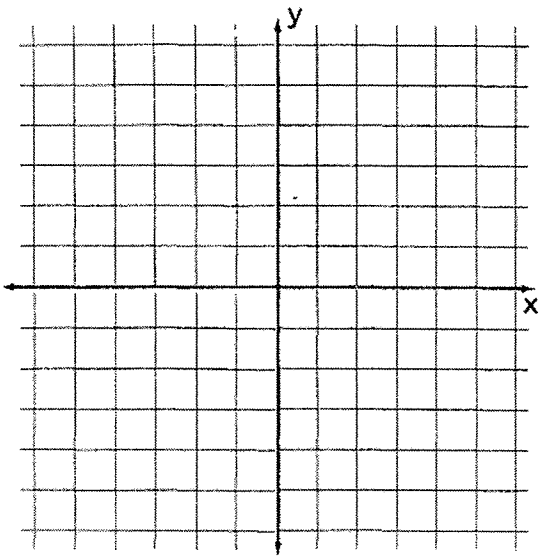
Solve algebraically: $x^2 - 3x - 4 < 0$

4. Solve a quadratic inequality by graphing

(note: "less thAND" and "greatOR" still work here)
Quick review: If "a" and "b" are the roots to the equation....

AND OR

Solve by graphing:
$3x^2 - x - 5 \geq 0$



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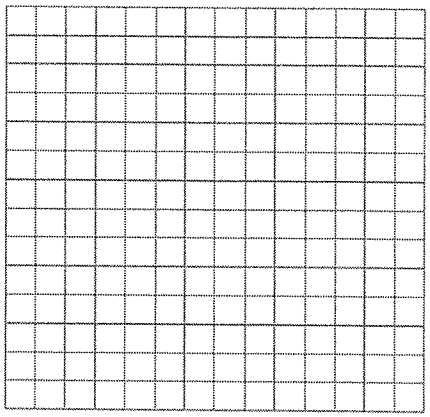
Chap 3: Quadratics

Topic: Quadratic Inequalities - Application problems

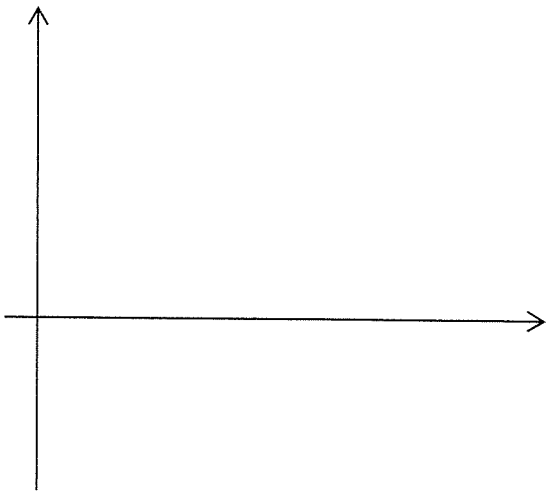
1. A manila rope used for rappelling down a cliff can safely support a weight W (in pounds) provided

$$1480d^2 \geq W$$

where d is the diameter (in inches) of the rope. Graph the inequality and interpret the solution.



2. A rectangular parking lot must have a perimeter of 440 feet and an area of at least 8000 square feet. Describe the possible lengths of the parking lot. After setting up your equations/inequalities, use your graphing calculator. Copy the graph from your calculator.



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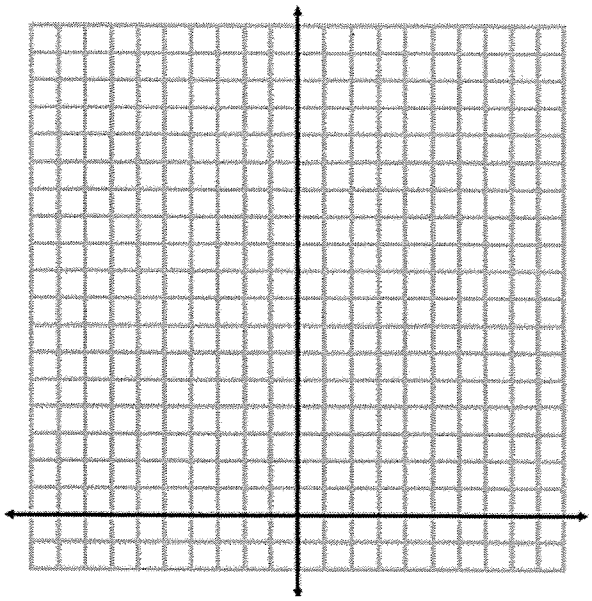
Chap 3: Quadratics

Topic: Quadratic Inequalities - Practice Problems

1. Solve this system by graphing.

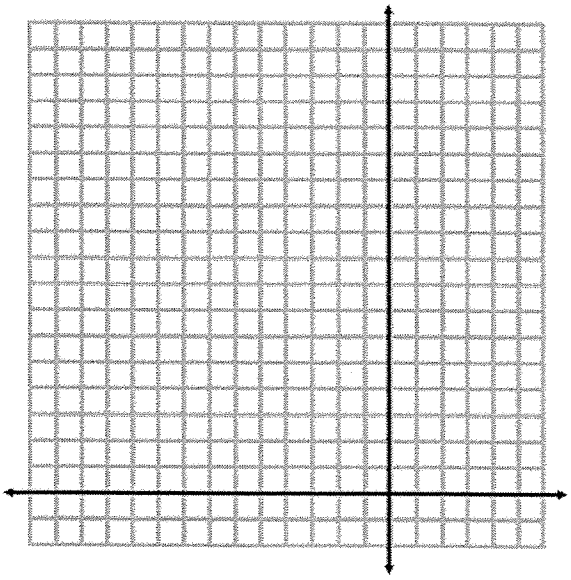
   $y \geq x^2$

   $2x + y < 8$



2. $y \leq 2x + 10$

   $y \geq -x^2 - 4x + 1$



Solve these inequalities algebraically or by graphing.

3. $2x^2 + 3x \leq 2$

Solution statement(s)_____

4. $-3x^2 - 4x + 1 \leq 0$

Solution statement(s)_____

5. $2x^2 + 2 > -5x$

Solution statement(s)_____