Algebra II **Section 5.7**
Auch **Date:**

Objectives

- Solve quadratic inequalities by using the tables and graphs.
  Solve quadratic inequalities by using **Algebra**

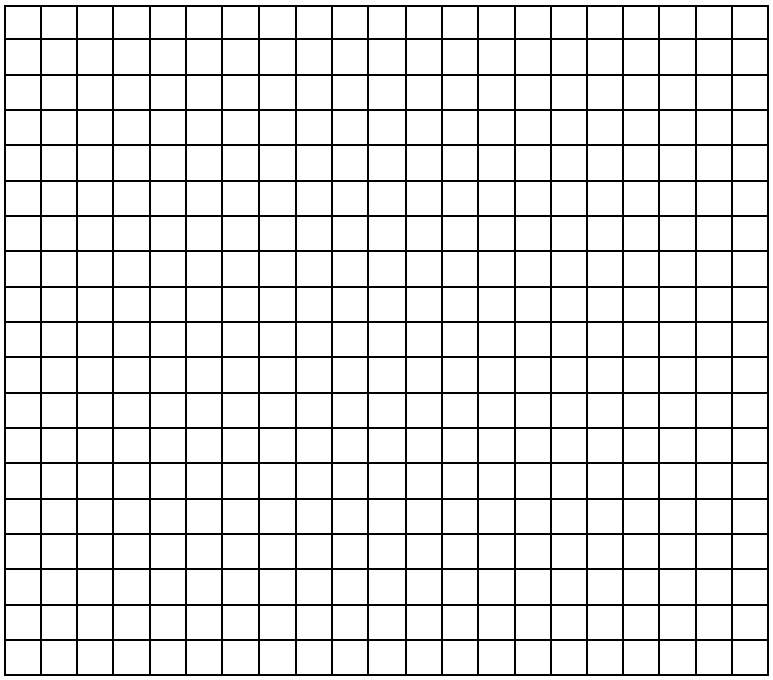
Vocabulary

quadratic inequality in two variables -

Graphing Quadratic Inequalities
1. Graph the parabola that defines the boundary
2. Use a solid parabola for $y \leq$ and $y \geq$ and a dashed parabola for $y <$ and $y >$.
3. Shade above the parabola for $y >$ and $y \geq$ and below for $y \leq$ and $y <$.

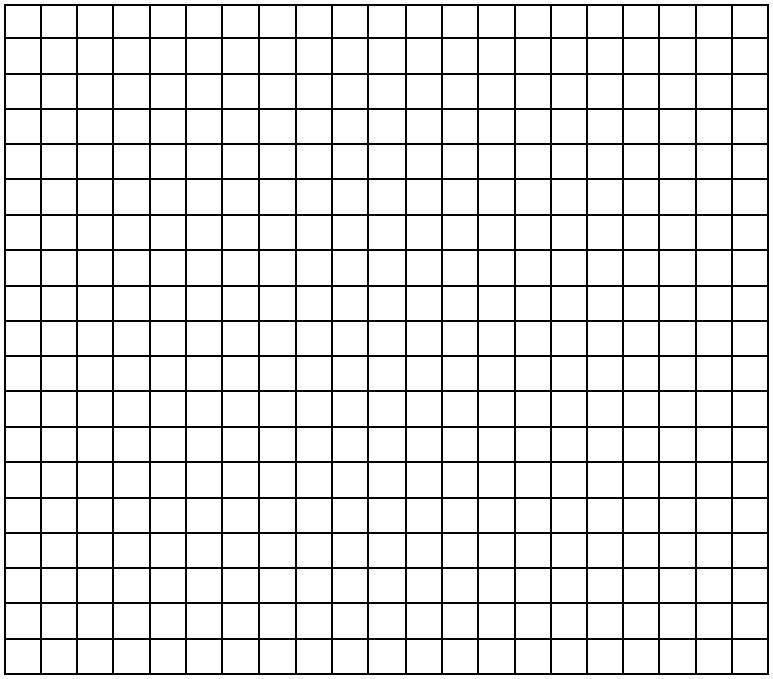
Example 1

Graph $y < -2x^2 - 4x + 6$

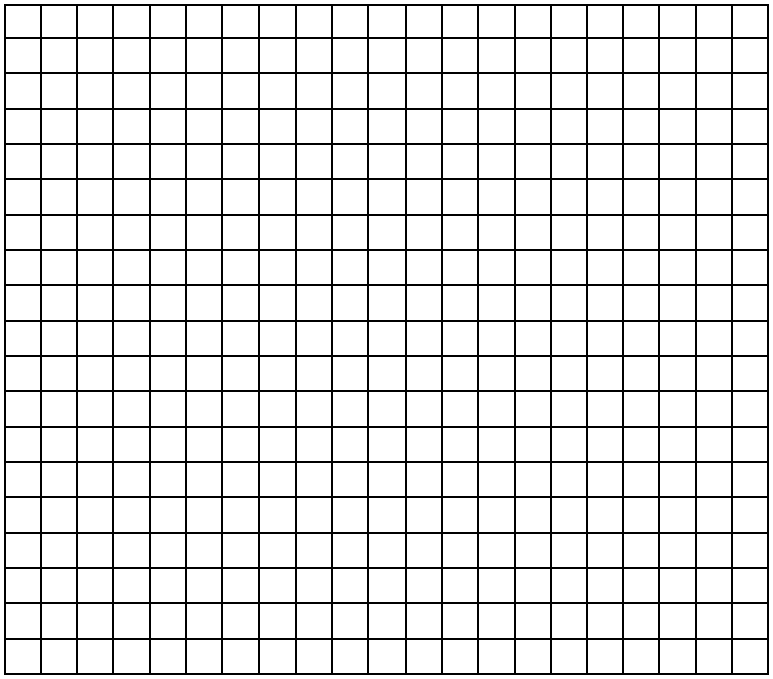


Try it!

a) **Graph** $y \geq 2x^2 - 5x - 2$



b) **Graph** $y < -2x^2 - 4x + 6$



Example 2 **Solving inequalities using tables**

a) $x^2 - 6x + 8 \leq 3$

Solving inequalities using tables

b) $x^2 - 6x + 8 > 3$

Try it! **Solving inequalities using tables**

a) $x^2 - x + 5 < 7$

Solving inequalities using tables

b) $2x^2 - 5x + 1 \geq 1$

Example 3 **Solving Quadratic Inequalities using Algebra**

Solve the inequality $x^2 - 4x + 1 > 6$

Step 1 Write the related equation.

Step 2 Solve the equation for *x* to find the critical values.

Step 3 Test an *x*-value in each interval

Try it! **Solving Quadratic Inequalities using Algebra**

Solve the inequality $x^2 - 6x + 10 \geq 2$

Step 1 Write the related equation.

Step 2 Solve the equation for *x* to find the critical values.

Step 3 Test an *x*-value in each interval

Try it! **Solving Quadratic Inequalities using Algebra**

Solve the inequality $-2x^2 + 3x + 7 < 2$

Step 1 Write the related equation.

Step 2 Solve the equation for x to find the critical values.

Step 3 Test an x-value in each interval

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Quiz on Quadratic Formula, Discriminant and adding, subtracting, multiplying complex numbers