



QUADRATIC INEQUALITIES WORKSHEET

GRAPHING/SOLVING A QUADRATIC INEQUALITY IN TWO VARIABLES

To graph a quadratic inequality, follow these steps:

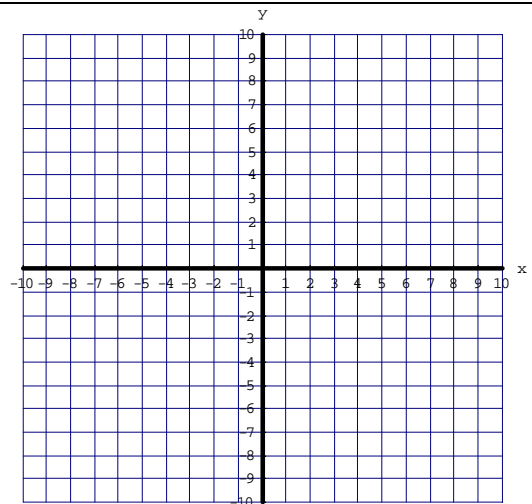
Step 1 Graph the parabola with equation $y = ax^2 + bx + c$.

Make the parabola dashed for inequalities with $<$ or $>$ and solid for inequalities with \leq or \geq .

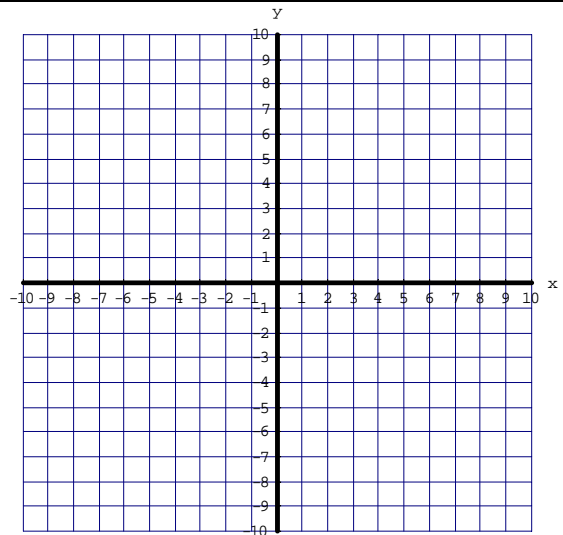
Step 2 Test a point (x, y) to determine whether the point is a solution of the inequality.

Step 3 Shade the region (inside or outside) the parabola if the point from Step 2 is a solution. Shade the other region if it is not a solution.

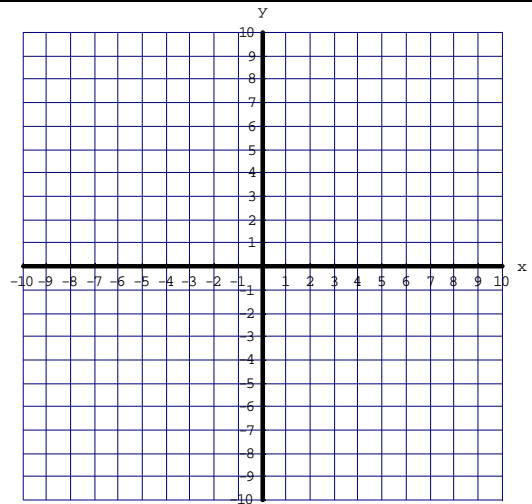
1.) $y \leq -x^2 + 2x + 3$



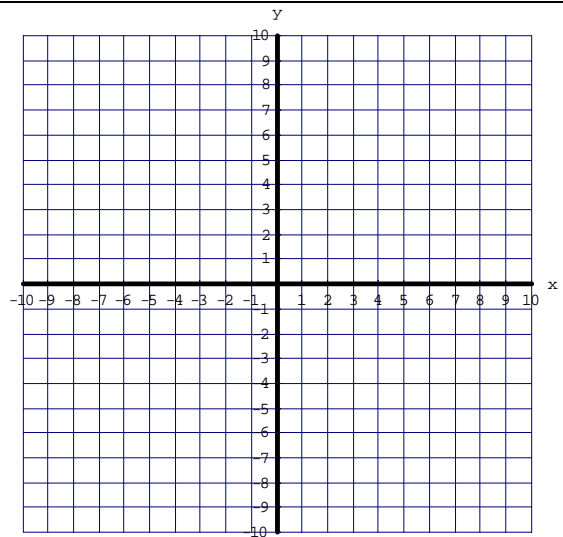
2.) $y \geq x^2 + 3x - 4$



3.) $y > 3x^2 + 3x - 5$



4.) $y < -x^2 + 4$



GRAPHING/SOLVING A QUADRATIC INEQUALITY IN ONE VARIABLE

Follow these steps:

Step 1 Solve the inequality as though it was an equation by factoring or with the quadratic formula. These solutions are now your boundary points.

Step 2 Make the boundary solid circles if the inequality includes equality; otherwise the boundary points are open circles.

Step 3 Select points from each of the regions created by the boundary points. Replace these “test points” in the original inequality.

Step 4 If a test point satisfies the original inequality, then the region that contains that test point is part of the solution.

Step 5 Represent the solution in graphic form and in solution set form.

Solve each quadratic inequality.

5. $x^2 - 3x - 10 > 0$

6. $x^2 + 5x - 14 \geq 0$

7. $9x^2 - 2 < -3x$

8. $x^2 + 6x > 8$

9. $25 - x^2 \geq 0$

10. $4t^2 - 9 \leq -4t$