

# Graphing and Solving Quadratic Inequalities

## Graphing Two-Variable Quadratic Inequalities

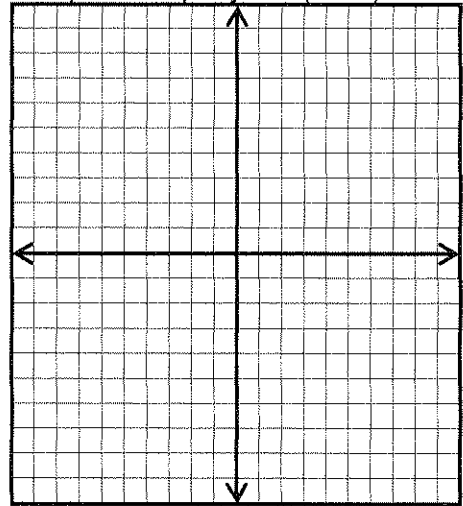
To graph the solution to a two-variable quadratic inequality:

- Graph the boundary using the quadratic function. Determine if it should be solid or dotted.

$\leq$	or	$\geq$	
$<$	or	$>$	

- Test a point in each region.
- Shade the region of the point that forms a true inequality.

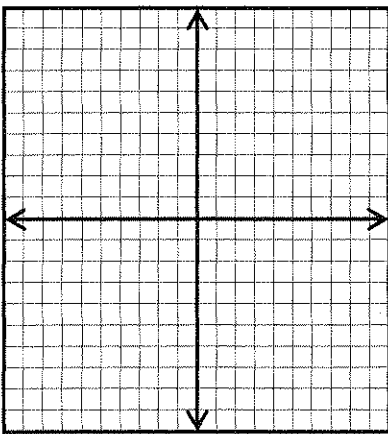
Example: Graph  $y \leq 2(x+1)^2 - 18$



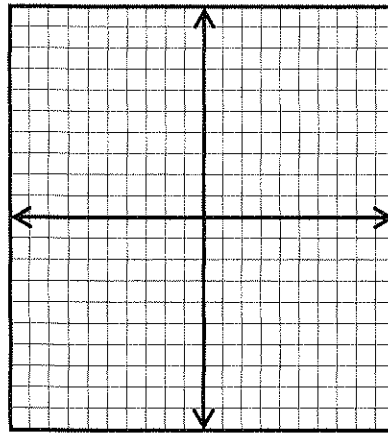
### PRACTICE PROBLEMS

Graph the solution to each inequality.

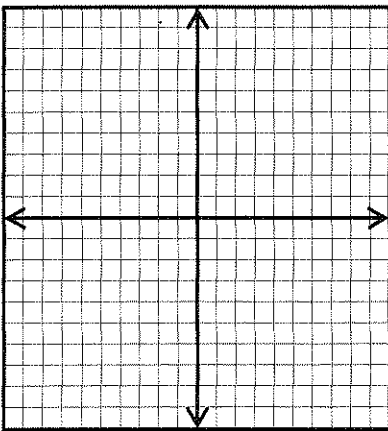
1)  $y < (x-4)^2 + 3$



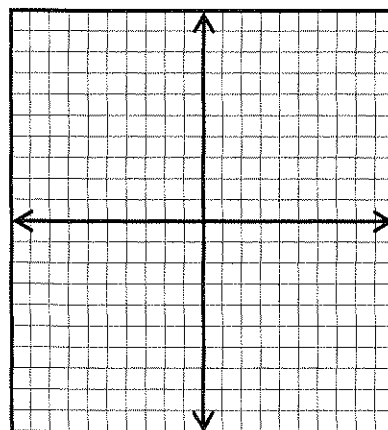
2)  $y \leq -2(x-3)^2 + 5$



3)  $y \geq -(x-4)^2$

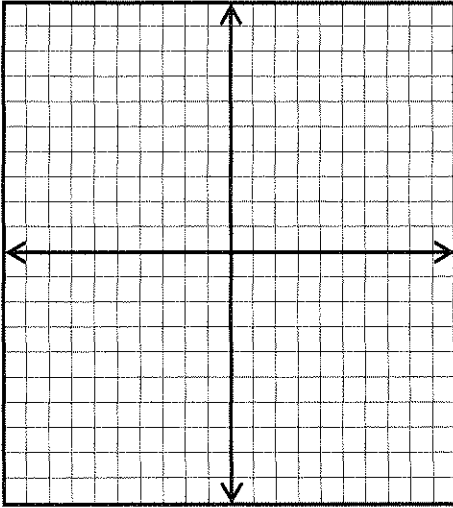


4)  $y < \frac{1}{2}(x+2)^2 - 1$

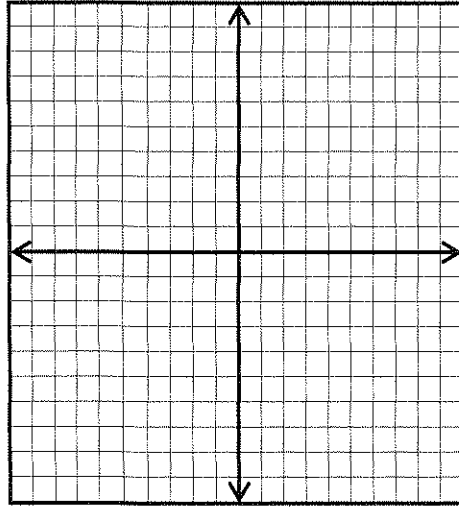


## Graphing Quadratic Inequalities Practice

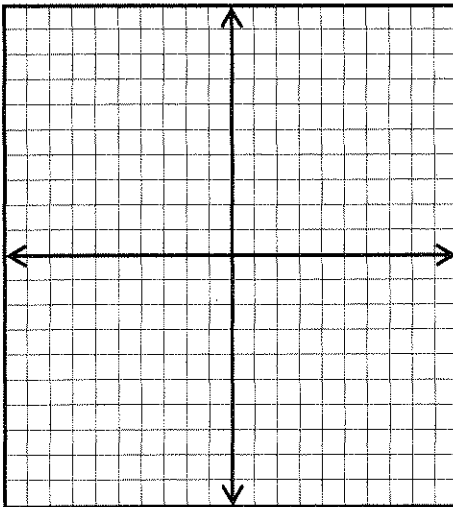
1.  $y \leq x^2 + 3x + 4$



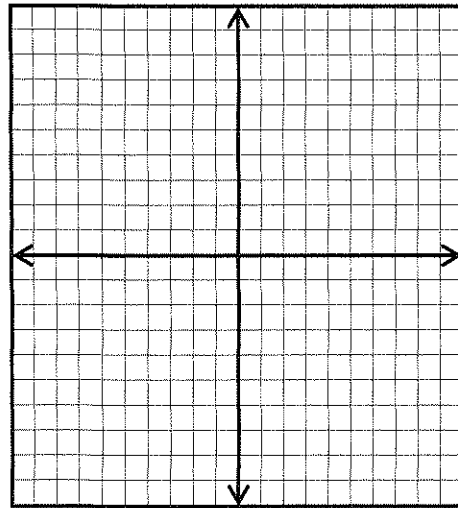
2.  $y > x^2 + 4x + 4$



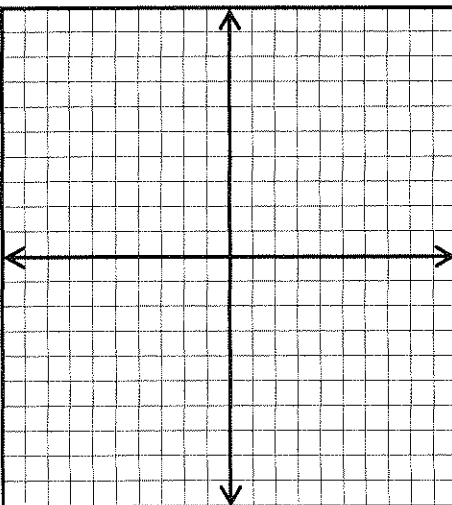
3.  $y \geq x^2 - 7x + 10$



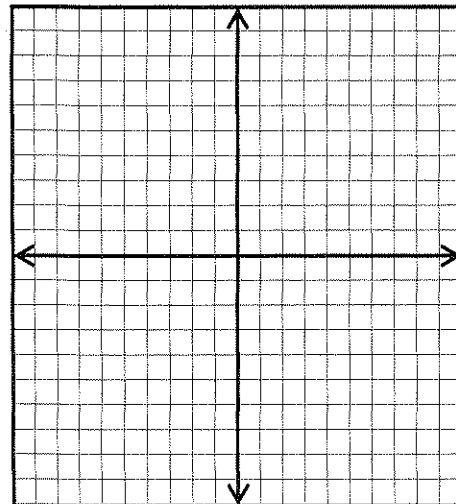
4.  $y < x^2 - 9$



5.  $y \leq -2x^2 - x - 1$



6.  $y > -x^2 + 4$



## Quadratic Inequalities

#1-3 Determine whether the ordered pair is a solution of the inequality. Show your work then answer yes or no.

1.  $y < x^2 - 2x + 4$ , (1,2)

2.  $y > 2x^2 + x - 5$ , (-2,1)

3.  $y \leq -2x^2 + 5x + 6$ , (4,-4)

#4-9 Match the inequality with its graph.

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

\_\_\_\_\_ 5.  $y \leq -x^2 - 4x - 3$

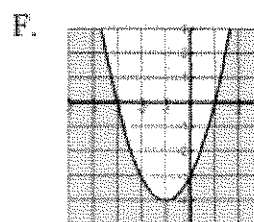
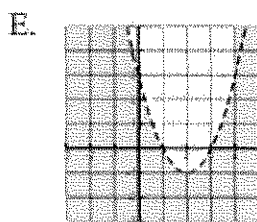
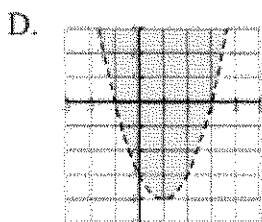
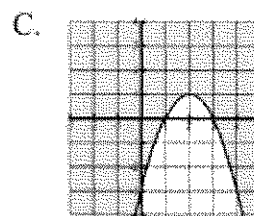
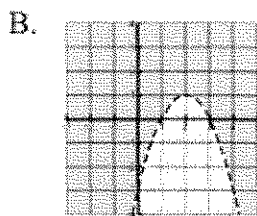
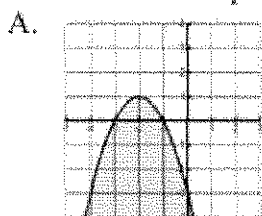
\_\_\_\_\_ 6.  $y \leq x^2 + 2x - 3$

\_\_\_\_\_ 7.  $y < x^2 - 4x + 3$

\_\_\_\_\_ 8.  $y > -x^2 + 4x - 3$

\_\_\_\_\_ 9.  $y > x^2 - 2x - 3$

Use A-F to match with quadratic inequalities #4-9.

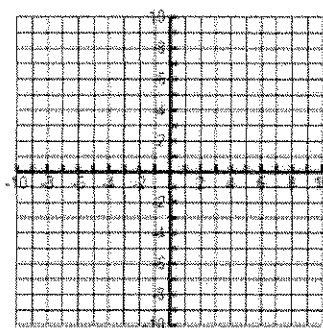
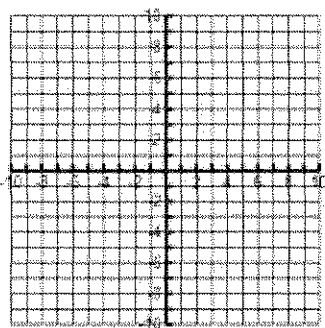
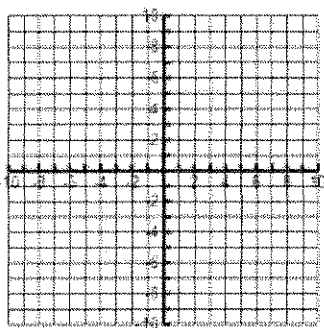


#13-15 Graph each quadratic inequality.

13.  $y \leq x^2 - 6x + 8$

14.  $y \leq -x^2 + 6x - 7$

15.  $y > 2x^2 - 4x - 6$



Name: \_\_\_\_\_

Date: \_\_\_\_\_

Unit 8: Quadratic Equations

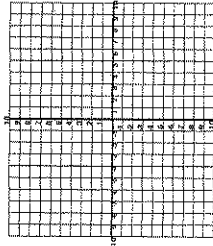
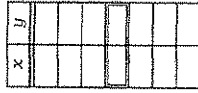
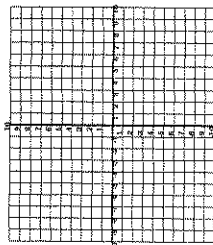
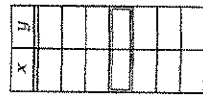
Homework 12: Quadratic Inequalities

\*\* This is a 2-page document! \*\*

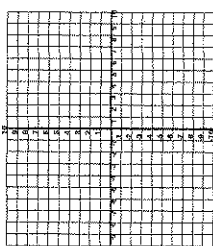
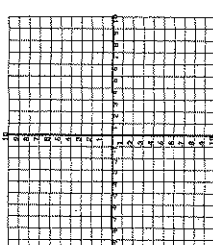
Directions: Graph the following quadratic inequalities. Shade to show the possible solutions.

1.  $y > x^2 + 2x - 3$

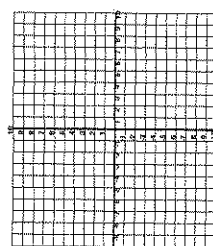
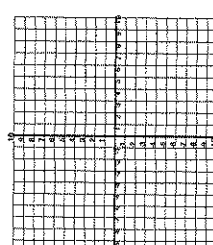
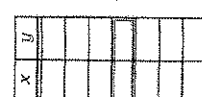
2.  $y \leq 2x^2 - 12x + 20$



3.  $y < -x^2 + 8x - 19$



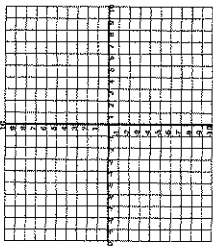
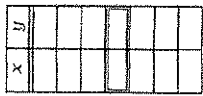
4.  $y < x^2 - 4x + 3$



5.  $y \geq -2x^2 + 16x - 25$

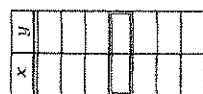
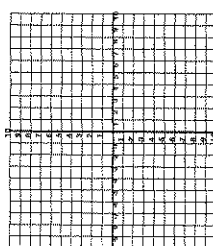
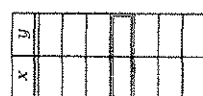
6.  $y \geq 3x^2 + 18x + 25$

7.  $y \leq x^2 - 6x$



8.  $y > -x^2 + 4x - 7$

9.  $y \geq 2x^2 - 4x$



10.  $y < -x^2 + 5$

