Quadratic Inequalities

Example 1 Graph the solution of the quadratic inequality

A] $y > -x^2 + 2x + 1$

Standard form

vertex:

y-int:

B] $y \le 2(x-2)^2 - 3$

vertex form

vertex:

y-int:

C] $y \ge (x-3)(x+1)$

intercept form

x-int:

vertex:

y-int:

Dashed: Solid:

Shade up: Shade down:

For a system of inequalities, any point that lies within the _____ shaded area or on a _____ boundary line of that area is a solution.

Example 4 Is the ordered pair is a solution?

A solution must satisfy all inequalities. On the graph, it must lie in the overlapping shaded region or on a solid line bordering that region.

(3,-2) (1,-3) (2,3) (1,6)

Example 2 Graph the solution of the system

A] $\begin{cases} y \le (x-3)^2 - 6 \\ y > \frac{1}{2}x - 4 \end{cases}$

B] $\begin{cases} y \ge (x+3)^2 - 2 \\ y \le -|x+3| + 4 \end{cases}$

Example 3 Write the system of inequalities

A]

B]

C]