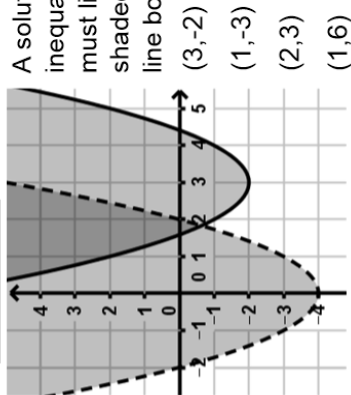


### Example 4 Is the ordered pair a solution?

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.



## Quadratic Inequalities

Dashed:

Solid:

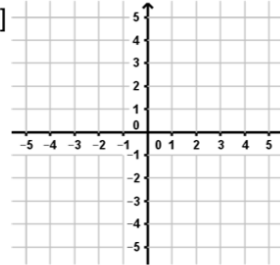
Shade up:

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 1 Graph the solution of the quadratic inequality

A]



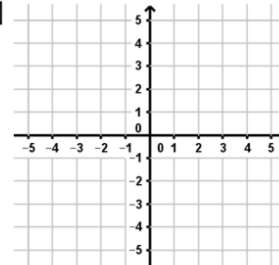
$$y > -x^2 + 2x + 1$$

Standard form

vertex:

y-int:

B]



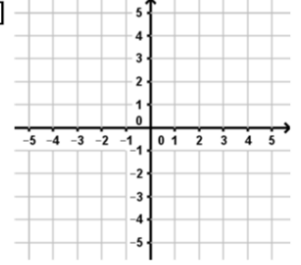
$$y \leq 2(x - 2)^2 - 3$$

vertex form

vertex:

y-int:

C]



$$y \geq (x - 3)(x + 1)$$

intercept form

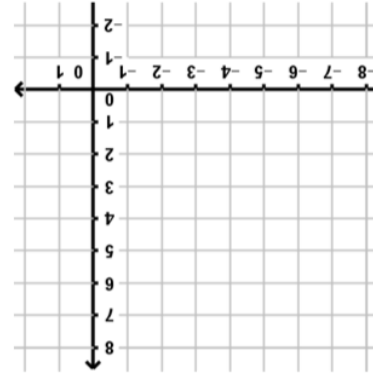
x-int:

vertex:

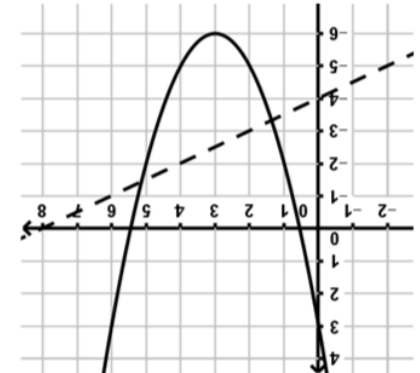
y-int:

### Example 2 Graph the solution of the system

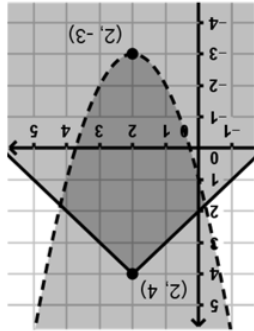
$$\begin{cases} y \geq (x + 3)^2 - 2 \\ y \leq -\frac{1}{2}x + 4 \end{cases}$$



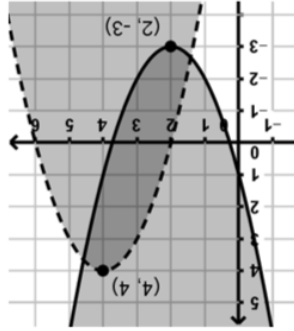
B]



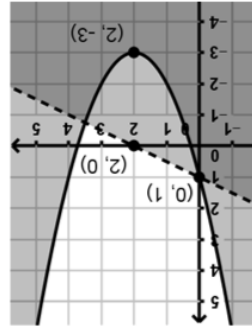
A]



C]



B]



A]

### Example 3 Write the system of inequalities