Section 10.7
Using the Discriminant

The discriminant . . .
- the number under the square root or radical
- can be used to determine the number of solutions or answers

$$\frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

If $b^2 - 4ac$ is . . .

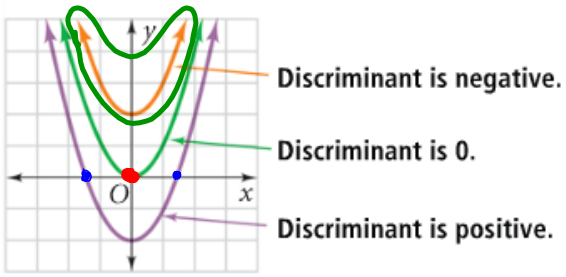
- positive then there are two solutions
- zero then there is only one solution
- negative then there is no solution

$\sqrt{16} = \pm 4$

$\sqrt{0} = 0$

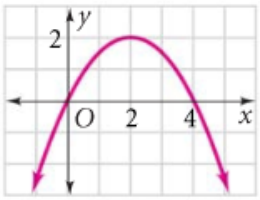
$\sqrt{-10} = N.S.$

This graph shows the three cases together.



For which discriminant is each graph possible?

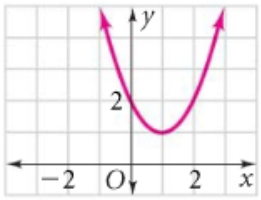
1.



A. $b^2 - 4ac = 4$

pos
2
yes

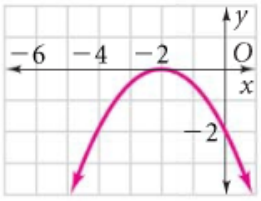
2.



B. $b^2 - 4ac = 0$

0
1
No

3.



C. $b^2 - 4ac = -4$

neg
0
No

Mental Math **Find the number of solutions of each equation.**

4. $x^2 - 3x + 4 = 0$ **5.** $x^2 - 6x + 9 = 0$ **6.** $x^2 + 4x - 2 = 0$

b^2-4ac

$9-4(1)4$

$-$

N.S.

1

+

2

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