

5.6 Day 2

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

$b^2 - 4ac$: discriminant

If $b^2 - 4ac > 0 \rightarrow 2$ real solutions

$b^2 - 4ac = 0 \rightarrow 1$ real sol.

$b^2 - 4ac < 0 \rightarrow$ no real sol.

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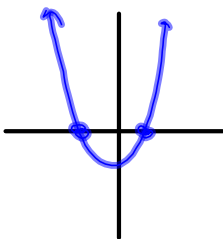
Find the discriminant. Determine # of real solutions.

$$2x^2 + 4x + 1 = 0$$

$$b^2 - 4ac$$

$$16 - 4(2)(1) = 8$$

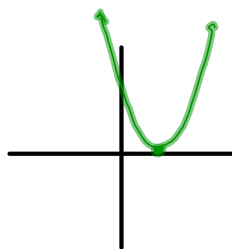
2 real sol.



$$2x^2 + 4x + 2 = 0$$

$$16 - 4(2)(2) = 0$$

1 real sol.

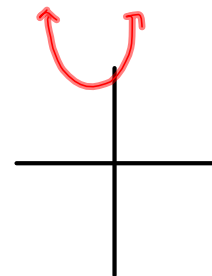


$$2x^2 + 4x + 3 = 0$$

$$16 - 4(2)(3)$$

$$-8$$

no real sol.



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Solve using the quadratic formula:

$$3x^2 - 7x + 5 = 0$$

$$x = \frac{7 \pm \sqrt{49 - 4(3)(5)}}{6}$$

$$= \frac{7 \pm \sqrt{-11}}{6}$$

$$* = \frac{7 \pm \sqrt{11}i}{6}$$

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$$-4x^2 + 5x - 3 = 0$$

$$x = \frac{-5 \pm \sqrt{25 - 4(-4)(-3)}}{-8}$$

$$= \frac{-5 \pm \sqrt{-23}}{-8}$$

$$= \frac{-5 \pm \sqrt{23}i}{-8} = \frac{5 \pm \sqrt{23}i}{8}$$

$$\sqrt{23}i$$

$$i\sqrt{23}$$

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