## Algebra 2

## 3-05 Solve Quadratic Equations using the Quadratic Formula (3.4)

Work with a Partner: Solve $a x^{2}+b x+c=0$

Quadratic Formula

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

$\qquad$ works for quadratic equations.

## Discriminant

- The part under the square root, $\qquad$ tells you what kind of solutions you are going to have.
- $b^{2}-4 a c>0 \rightarrow$ $\qquad$ distinct $\qquad$ solutions
- $b^{2}-4 a c=0 \rightarrow$ exactly $\qquad$ solution (a double solution)
- $b^{2}-4 a c<0 \rightarrow$ ___ distinct $\qquad$ solutions
What types of solutions to $5 x^{2}+3 x-4=0$ ?

Solve $5 x^{2}+3 x=4$

Solve $4 x^{2}-6 x+3=0$

Find a possible pair of integer values for $a$ and $c$ so that the equation
$a x^{2}-12 x+c=0$ has the given number and type of solution(s). Then write the equation.
a. one real solution
b. two imaginary solutions

## Real life problems

- The $\qquad$ of an object that is hit or thrown up or down can be modeled by

$$
h(t)=-16 t^{2}+v_{0} t+s_{0}
$$

- where $v_{0}$ is the initial ___ (up +, down -), and $\mathrm{s}_{0}$ is the initial
$123 \# 1,3,5,7,9,11,13,15,17,19,23,25,27,39,61$, Mixed Review $=20$

