

## 2/5/13 The quadratic formula

The quadratic formula is used to solve any quadratic equation (so if you don't want to use Super X, there is a new way!)

The quadratic formula is:

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

Ex ① Solve  
 $3x^2 - 2x - 5 = 0$   
 $a=3$   $b=-2$   $c=-5$

$$\begin{aligned}x &= \frac{2 \pm \sqrt{4 - 4(3)(-5)}}{2(3)} \\&= \frac{2 \pm \sqrt{4 + 60}}{6} \\&= \frac{2 \pm \sqrt{64}}{6} \\&= \frac{2 \pm 8}{6} = \frac{10}{6}, \frac{-6}{6} \\&= \left[ \frac{5}{2}, -1 \right]\end{aligned}$$

②  $2x^2 + 11x + 5 = 0$   
 $a=2$   $b=11$   $c=5$

$$\begin{aligned}x &= \frac{-11 \pm \sqrt{121 - 4(2)(5)}}{2(2)} \\&= \frac{-11 \pm \sqrt{81}}{4} = \frac{-11 \pm 9}{4} \\&= \left[ -\frac{1}{2}, -5 \right]\end{aligned}$$

③  $2x^2 + 5x + 2 = 0$