

10.8 Solving quadratic  
in the form  
 $ax^2 + bx + c$   
by factoring  
Not all are factorable

When factorable  
 $x^2 + 5x - 6$   
 $0 = (x+6)(x-1)$   
 $0 = (x+6) \quad 0 = x-1$   
 $x = -6, 1$

Need a rule to find  
solutions when not factorable

$$2x^2 + 3x + 1$$

Use Quadratic Formula

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \begin{matrix} a=2 \\ b=3 \\ c=1 \end{matrix}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad a=2 \quad b=3 \quad c=1$$

$$x = \frac{-3 \pm \sqrt{9-8}}{4} \quad \text{Sol } x = -1, -\frac{1}{2}$$

$$x = \frac{-3 \pm \sqrt{1}}{4}$$

$$x = \frac{-3 \pm 1}{4} \begin{cases} \frac{-3+1}{4} = \frac{-2}{4} = -\frac{1}{2} \\ \frac{-3-1}{4} = \frac{-4}{4} = -1 \end{cases}$$

$$3x^2 - 7x - 4$$

$$a=3 \quad b=-7 \quad c=-4$$

$$\frac{7 \pm \sqrt{49 + 48}}{6} \quad \text{Sol } x = 2.81, -0.475$$

$$\frac{7 \pm \sqrt{97}}{6}$$

$$\frac{7 \pm 9.85}{6} \begin{cases} \frac{7+9.85}{6} = 2.81 \\ \frac{7-9.85}{6} = -0.475 \end{cases}$$

Three methods for quadratics  
Factor - works if factorable  
Graphing - where is x-int?  
If not graphed, find  
the x-int  
where is line of symmetry  
Quadratic formula When not factorable