

Do Now

Solve for x by completing the square

1)  $x^2 - 2x - 35 = 0$

~~$+35 - 35$~~

$b = -2$

$x^2 - 2x = 35$

$x^2 - 2x + \left(\frac{-2}{2}\right)^2 = 35 + \left(\frac{-2}{2}\right)^2$

$x^2 - 2x + 1 = 35 + 1$

$x^2 - 2x + 1 = 36$

$\sqrt{(x-1)^2} = \sqrt{36}$

$x-1 = \pm 6$

$x-1 = 6$	$x-1 = -6$
$+1 \quad -1$	$+1 \quad -1$
$\hline x = 7$	$\hline x = -5$

$\{-5, 7\}$

2)  $x^2 - 12x + 80 = 0$

~~$-80 - 80$~~

$b = -12$

$x^2 - 12x = -80$

$x^2 - 12x + \left(\frac{-12}{2}\right)^2 = -80 + \left(\frac{-12}{2}\right)^2$

$x^2 - 12x + 36 = -80 + 36$

~~$x^2 - 12x + 36 = -44$~~   
 $\sqrt{(x-6)^2} = \sqrt{-44}$

$x-6 = \pm \sqrt{-44}$

$x-6 = \sqrt{-44}$

$+6 \quad +6$

$x = 6 + \sqrt{-44}$

$x-6 = -\sqrt{-44}$

$+6 \quad -6$

$x = 6 - \sqrt{-44}$

NON-real roots b/c  
discriminant

$x = 6 \pm \sqrt{-44}$