

# CTS Day 1

## complete the square (CTS)

• goal is to get factors that are the same<sup>ex</sup>  $(x+z)(x+z)$

### examples

$$\left. \begin{aligned} x^2 + 2x + 1 &= (x+1)(x+1) = (x+1)^2 \\ x^2 - 6x + 9 &= (x-3)(x-3) = (x-3)^2 \\ x^2 + 10x + 25 &= (x+5)(x+5) = (x+5)^2 \end{aligned} \right\} \text{perfect square trinomials.}$$

$a=1$  solve by CTS

1.  $x^2 - 10x + 24 = 0$

$(x^2 - 10x + \underline{\quad}) - \underline{\quad} + 24 = 0$  ① add ( ) & blanks  
 $(x^2 - 10x + (\frac{b}{2})^2) - (\frac{b}{2})^2 + 24 = 0$  ② in the blanks go  $(\frac{b}{2})^2$

$(x + \frac{b}{2})^2 \rightarrow (x^2 - 10x + 25) - 25 + 24 = 0$   
 $(x - 5)^2 - 1 = 0$  ③ factor ( ) & combo terms

$$\begin{aligned} \sqrt{(x-5)^2} &= \sqrt{1} \\ x-5 &= \pm 1 \\ x &= 5 \pm 1 \end{aligned}$$

$$5+1=6 \quad 5-1=4$$

$\{6, 4\}$

④ solve for x

2.  $x^2 + 8x + 7 = 0$

3.  $x^2 + 6x - 2 = 0$

4.  $x^2 + 5x + 1 = 0$