completing the square

1. Make sure $= a = 1$
2. Subtract "c" $x^2 + bx = -c$
3. find the Magic # $\left(\frac{b}{2}\right)^2$
4. Add the Magic # to both sides
5. factor the perfect square trinomal
6. Take the square root of both sides
   * don't forget positive #'s have 2 square roots "+" "-"
7. Solve

$x^2 + 12x + 32 = 0$

$x^2 + 12x = -32$

$x^2 + 12 + 36 = 4$

$x^2 + 6x + 6x + 36 = 4$

$x(x+6) + 6(x+6) = 4$

$(x+6)(x+6) = 4$

$\sqrt{(x+6)^2} = \sqrt{4}$

$x + 6 = \pm 2$

$x + 6 = 2$

$x = -4$

$x + 6 = -2$

$x = -2 - 6$

$= -8$