

# Factoring Quadratics Expressions $a=1$

Standard form:  $ax^2 + bx + c$

factored form:  $(x + r_1)(x + r_2)$

① List factor pairs of  $c$

Example:  $x^2 + x - 12$

② Find a pair whose sum =  $b$

③ Use the pair for the two factors

	-12	
→	-3, 4	1
	-6, 2	-4
	-2, 6	4
	-12, 1	-11
	-4, 3	-1
	12, -1	11

$$(x - 3)(x + 4)$$

$$x^2 + 4x - 3x - 12$$
$$x^2 + x - 12 \checkmark$$

FOIL to check



Example 2:

$$x^2 - 4x - 45$$

$$(x - 9)(x + 5)$$

	-45	
→	-9, 5	-4
	-5, 9	
	15, -3	
	-15, 3	
	-1, 45	
	-45, 1	

\*  $r_1$  and  $r_2$  must have a product of  $c$  and add up to  $b$