Factoring - Quadratic Trinomials

$$ax^2 + bx + c$$

$\underline{a = 1}$

Step 1: Look for the factors of the last term that either add or subtract (depending on the 2nd sign) to the middle term.
Step 2: Find the signs:

- If the second sign is positive, then both signs inside the parentheses get the first sign.
- If the second sign is negative, then the bigger number inside the parentheses gets the first sign.

1. Factor each trinomial.

a) $x^2 + 11x + 30$

b) $x^2 - 12x + 32$

c) $y^2 - 21y - 72$

d) $m^2 - 5m - 24$

e) $3g^2 + 6gh - 189h^2$

$\underline{a \neq 1}$

Step 1: List the factors of the first and last terms.
Step 2: Look for the outer and inner products that either add or subtract (depending on the 2nd sign) to the middle term.
Step 3: Find the signs:

- If the second sign is positive, then both signs inside the parentheses get the first sign.
- If the second sign is negative, then the bigger product inside the parentheses gets the first sign.

2. Factor each trinomial.

a) $3x^2 + 10x + 8$

b) $2x^2 - 17x + 30$

c) $6y^2 - 25y - 9$

d) $40x^2 + 70x - 75$