

### 5.3 Factor Trinomials of the Form $x^2 + bx + c$

#### A Link between the Standard Form and the Factored Form

Example 1. Let assume that:

$$(x + p)(x + q) = x^2 + bx + c$$

Find the relations between the parameters  $p$ ,  $q$ ,  $b$ , and  $c$ .

Conclusion:

#### B Trinomials

A trinomial is a polynomial with three terms.

Examples of trinomials:  $1 + x - x^2$ ,  $2x^2 - 3x + 4$

Example 2. Factor the following trinomials.

a)  $x^2 + 5x + 6$

b)  $x^2 - x - 12$

c)  $x^2 - 3x + 2$

d)  $x^2 + 4x + 4$

e)  $x^2 - 4$

f)  $x^2 + 5x$

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

h)  $x^2 + 4x - 32$

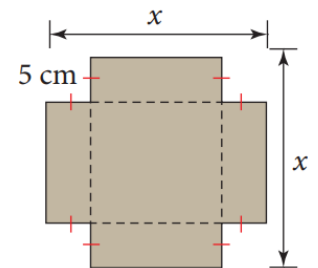
Example 3. Can you factor  $x^2 + 2x + 10$ ?

Example 4. Match the expressions on the left list to the expressions on the right list.

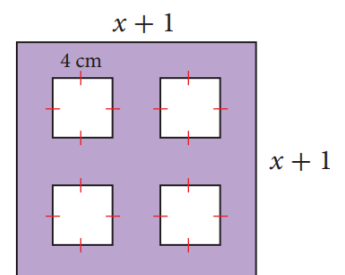
a) $x^2 + 5x + 6$		1. $(x + 4)(x - 3)$
b) $x^2 + x - 12$		2. $(x + 2)(x - 3)$
c) $x^2 - x - 6$		3. $(x - 2)(x - 3)$
d) $x^2 - 5x + 6$		4. $(x + 2)(x + 3)$

Example 5. (Application) Find an expression, in factored form, for the area of the shaded region of each figure.

a)



b)



Notes: Textbook Pages 248-252

Homework: Textbook Pages 253 #3, 6ab, 7ab, 8, 11a