## TOPIC: FACTORING TRINOMIALS OF THE FORM $x^2 + bx + c$

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

◆ Recall: *Multiply* two binomials $(x + p)(x + q)$ into a trinomial $x^2 + bx + c$ using the distributive property/FOIL.

► Factor a trinomial back into two binomials by finding $p$ & $q$ that **multiply** to $c$ and **add** to $b$.

**New** **Factoring $x^2 + bx + c$**

*Multiply (FOIL)* →

$$(x + 3)(x + 7) = x^2 + 7x + 3x + 21 = x^2 + 10x + 21$$

← *Factor*

Multiply to $c$ = ____

Add to $b$ = ____

**EXAMPLE** Factor the given polynomial.

**(A)**

$x^2 + 3x - 28$

| $p \cdot q =$ ____ | $p + q$ must $=$ ____ |
|---|---|
| | |

$(x + \_\_\_)(x + \_\_\_)$

**(B)**

$x^2 - 11x + 30$

| $p \cdot q =$ ____ | $p + q$ must $=$ ____ |
|---|---|
| | |

$(x + \_\_\_)(x + \_\_\_)$

## TOPIC: FACTORING TRINOMIALS OF THE FORM $x^2 + bx + c$

**PRACTICE** Factor the following trinomials completely.

$(A)$ $y^2 - 7y + 12$

$(B)$ $z^2 - 11z + 30$

**EXAMPLE** Factor the trinomial completely.

$x^2 - 5xy + 6y^2$