

## Notes: Factoring Trinomials

$$ax^2 + bx + c$$

Examples:

1.  $x^2 + 10x + 24$

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

Factors of 24:

$$2 \times 12 = 24$$

$$3 \times 8 = 24$$

$$4 \times 6 = 24$$

$$2 + 12 = 14$$

$$3 + 8 = 11$$

$$4 + 6 = 10$$

\* Find 2 numbers that multiply to give you last number/term, and add to get the middle term.

2.  $x^2 + 6x + 9$

$$(x + 3)(x + 3)$$

Factors of 9:

$$3 \times 3 = 9$$

$$3 + 3 = 6$$

3.  $b^2 - 3b - 54$

$$(b + 6)(b - 9)$$

Factors of 54:

$$2 \times -27 = -54$$

$$3 \times -18 = -54$$

$$6 \times -9 = -54$$

$$2 - 27 = -25 \quad \times$$

$$3 - 18 = -15 \quad \times$$

$$6 - 9 = -3 \quad \checkmark$$

4.  $n^2 - 2n - 7$

$$(\quad)(\quad)$$

prime

Factors of 7:

$$7 \times 1 = 7$$

$$-7 + 1 = -6$$

5. The area of a rectangle is  $m^2 - 2m - 8$ . Find the length and width of the rectangle.  $A = LW$

$$(m + 2)(m - 4)$$

Factors of 8:

$$1 \times 8 = 8$$

$$2 \times 4 = 8$$

$$2 - 4 = -2$$

6. The area of a rectangle is  $x^2 - 8x + 7$ . Find the length and width of the rectangle.

$$(x - 7)(x - 1)$$

Factors of 7:

$$-7 \times -1 = 7$$

$$-7 + (-1) = -8$$