

M10 - 5.5 - Factoring Combo Trinomials Notes

Factoring Combinations

$$2x^2 + 10x + 12$$

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

$GCF = 2$
 $a = 1$
 Factor

$$2(x+2)(x+3)$$

$$2(x+2)(x+3)$$

$$2(x^2 + 3x + 2x + 6)$$

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

FOIL

$$2x^2 + 10x + 12$$

OR

Decomposition

$$2x^2 + 10x + 12$$

$GCF = 2$

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

Forget about
the 2

$$x^2 + 2x + 3x + 6$$

Put the 2 down
Below | the
Answer

$$(x^2 + 2x)(+3x + 6)$$

$$x(x+2) + 3(x+2)$$

$$2(x+2)(x+3)$$

$$-x^2 - 5x - 6$$

$$-(x^2 + 5x + 6)$$

$a = -1$
 $GCF = -1$

$$-(x+2)(x+3)$$

Factor

$$-(x^2 + 3x + 2x + 6)$$

$$-(x^2 + 5x + 6)$$

FOIL

$$-x^2 - 5x - 6$$

$$x^3 + 5x^2 + 6x$$

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

$GCF = x$
 Factor

$$x(x+2)(x+3)$$

$$x(x+2)(x+3)$$

$$x(x^2 + 3x + 2x + 6)$$

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

$$x^3 + 5x^2 + 6x$$

$$x^4 + 5x^2 + 6$$

$$(x^2 + 3)(x^2 + 2)$$

Factor

$$(x^2 + 3)(x^2 + 2)$$

$$x^4 + 2x^2 + 3x^2 + 6$$

FOIL

$$x^4 + 5x^2 + 6$$

$$x^4 - 5x^2 - 36$$

$$(x^2 - 9)(x^2 + 4)$$

Factor Trinomials

$$(x-3)(x+3)(x^2+4)$$

Factor Differences of Squares

$$x^2 - 3xy - 10y^2$$

$$(x-5y)(x+2y)$$

$a = 1$
 Factor

$$(x+2y)(x-5y)$$

$$x^2 - 5xy + 2xy - 10y^2$$

FOIL

$$x^2 - 3xy - 10y^2$$

$$\underline{-5} \times \underline{2} = \cancel{-10}$$

$$\underline{-5} + \underline{2} = \cancel{-3}$$

Decomposition

$$x^2 - 3xy - 10y^2$$

$$x^2 - 5xy + 2xy - 10y^2$$

$$(x^2 - 5xy) + (2xy - 10y^2)$$

$$x(x-5y) + 2y(x-5y)$$

$$(x+2y)(x-5y)$$