1.3/1.4 SOLVING QUADRATIC EQUATIONS BY FACTORING

OBJECTIVE: To be able to factor quadratic expressions and solve quadratic equations by factoring.

F.O.I.L: (x + 4)(x – 6)

☻Factoring: FOIL backwards!!

EXAMPLE #1: Factoring x² + bx + c, where a = 1.

a) b) c)

d) e) f)

EXAMPLE #2: Factoring out a monomial (GCF).

a) b) c)

EXAMPLE #3: Factoring ax² + bx + c, where a ≠ 1.

a) b) c)

🟎Factoring Special Cases:

🡪Difference of two squares: a² − b² = (a + b)(a – b)

🡪Perfect square trinomials: a² + 2ab + b² = (a + b)²

a² − 2ab + b² = (a – b)²

EXAMPLE #4: Factoring special cases.

a) b) c) d)

e) f) g)

⁂SOLVING QUADRATIC EQUATIONS:

🡪Zero Product Property: If ab = 0, then a = 0 or b = 0.

EXAMPLE #5: Solve:

a) (x+3)(x-5) = 0 b) x2 + 3x - 18 = 0 c) y= x2 – 3x - 4

d) f(x)=2x2 + 9x + 7 e) 3x2 = 27 f) 3x2 -10x = 23x

Example 6: The Area of a rectangle is 36 find the value of x if it has a length of (x+5) and a width of x.