

Algebra 2

Tuesday 9-4-12

* Ch. 2-3 Solving Quadratic Equations by Graphing And Factoring

EX 1 Pg 77 $y = f(x) = x^2 + 2x - 3$

Find zeros by graph, factor
↑
Vocab

ZPP = "ZICP", the zero product property

Special cases of $y = ax^2 + bx + c$

$0 = ax^2 + bx + c$
if $b = 0 \Rightarrow \sqrt{\quad}$ both sides
if $c = 0 \Rightarrow$ factor

(EX) $g(x) = 3x^2 + 12x$
(2b)
(Pg 79)

* Special Pattern Factors $\Rightarrow$ PST
DOS

• Going backwards - (EX 5) (Pg 81) zeros are 2, -1

$$ab = 0 \quad a = 0, b = 0$$

$$(x+3)(x-6) = 0 \quad x = \{-3, 6\}$$

$$1x^2 - 3x + 18 = 0$$

$$\text{sum} = b = -3$$

$$\text{prod} = ac = -18$$

SHORTCUT
if $a=1$

$$\Rightarrow (x+3)(x-6) = 0$$

$$+3x - 6x$$

$$\text{FB6} \quad (x^2 + 3x) + (-6x, -18) = 0$$

$$x(\underline{x+3}) + -6(\underline{x+3}) = 0$$

$$\boxed{(\underline{x+3})(x-6) = 0}$$

16) mod 2
if $a=1$

$$a = (2-x)(x+3) \pmod{2}$$

Jeff

$$x^2 + 6x + 9 = 0 \quad \text{Double Root}$$

$$\downarrow \quad \downarrow$$

$$(x + 3)^2 = 0 \quad x = \{-3, -3\}$$

$$\boxed{x = \{-3\}}$$

$$x^2 - 6x + 9 = 0$$

$$\downarrow \quad \downarrow$$

$$(x - 3)^2 = 0 \quad x = \{3\}$$

$$(x-3)(x-3)$$

$$(x^2 - 3x - 3x + 9)$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

PST

*PST

DO'S

$$x^2 - 49$$

$$(x - 7)(x + 7)$$

CONJUGATES

$$a^2 - b^2 = (a - b)(a + b)$$

$$a^2 - b^2 = (a + b)(a - b)$$

$$\textcircled{x} \times 16x^2 - 81$$

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

$$16x^3 - 81 \quad \text{STUCK}$$

$$15x^2 - 81$$

$$3(5x^2 - 27)$$

$$16x^4 - 81$$

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

$$(2x - 3)(2x + 3)(4x^2 + 9)$$

Suppose $X = \{2, -1\}$

Could you find
the original
quadratic
equation.

$$(x-2)(x+1) = 0$$

$$x^2 + 1x - 2x - 2 = 0$$

$$x^2 - x - 2 = 0$$

EX 5
Pg 81

DOS

$$x^2 - \underline{\underline{1}}$$

$$(x-1)(x+1)$$

2 simple cases:

$$ax^2 + bx + c = 0$$

$$b = 0$$

$$ax^2 + c = 0$$

$$\frac{ax^2}{a} = \frac{-c}{a}$$

$$x = \pm \sqrt{-\frac{c}{a}}$$

$$c = 0$$

$$ax^2 + bx = 0$$

$$x(ax + b) = 0 \quad x = 0, -\frac{b}{a}$$

(Ex) (17) $x^2 + 8x = 0$
 $c = 0$ $x(x + 8) = 0$ $x = \{0, -8\}$

(Ex) $3x^2 - 12 = 0$
 $b = 0$ $\frac{3x^2}{3} = \frac{12}{3}$ $x^2 = 4$
 $x = \pm 2$

⑬ $35N^2 + 12 = 41N$

$$35N^2 - 41N + 12 = 0$$

$$\text{sum} = -41$$

$$\text{prod} = 35 \cdot 12 = 420$$

-20-21

$$(35N^2 - 20N) + (21N + 12) = 0$$

$$5N(7N - 4) + 3(7N - 4) = 0$$

$$(7N - 4)(5N - 3) = 0$$

$$N = \left\{ \frac{4}{7}, \frac{3}{5} \right\}$$

CK

$$\begin{array}{c}
 420 \\
 \swarrow \searrow \\
 10 \quad 42 \\
 \swarrow \searrow \quad \swarrow \searrow \\
 (2) (5) (7) (6) \\
 \quad \quad \quad \swarrow \searrow \\
 \quad \quad \quad (2) (3)
 \end{array}$$

10, 42
14, 30
6, 70
(21, 20)