

BE-1B | MONDAY 12-11-06

DISTRIBUTE and SIMPLIFY:

① $(x-2)(x+2)$

② $(y+4)(y-4)$

③ $(2x-6)(2x+6)$

④ $(6x+7y)(6x-7y)$

⑤ $(a+b)(a-b)$

DO YOU SEE THE PATTERN?

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

↑ ↑
THIS PATTERN IS
CALLED A
DIFFERENCE
OF SQUARES

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

①

Factor:

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

$$y^2 - 16 = (y-4)(y+4)$$

$$4x^2 - 36 = (2x-6)(2x+6)$$

$$36x^2 - 49y^2 = (6x-7y)(6x+7y)$$

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

Solve:

$$9x^2 - 16 = 0$$

$$(3x-4)(3x+4) = 0$$

$$x = \left\{ \frac{4}{3}, -\frac{4}{3} \right\}$$

WAHOOO

②

DOS is EASIEST PATTERN
TO RECOGNIZE:

- HAS ONLY 2 terms
 - terms SEPARATED BY -
 - EACH term is A perfect square
-

Solve:

$$49x^2 - 1 = 0$$

$$(7x - 1)(7x + 1) = 0$$

$$x = \left\{ \frac{1}{7}, -\frac{1}{7} \right\}$$

Solve:

$$x^2 + 4 = 0$$

↑

trick $\Rightarrow$ CANNOT USE DOS
PATTERN. STUCK 😞

(3.)

Solve:

$$x^2 - \frac{1}{25} = 0 \quad \sqrt{\frac{1}{25}} = \frac{\sqrt{1}}{\sqrt{25}} = \frac{1}{5}$$

$$\left(x - \frac{1}{5}\right)\left(x + \frac{1}{5}\right) = 0$$

$$\boxed{x = \frac{1}{5}, -\frac{1}{5}}$$

💡 Solving by factoring tip 💡
 "PULL OUT" A GCF 1st if you CAN!

EX 2. Pg 502

AL EQUATION

$$48a^3 - 12a = 0$$

$$12a(4a^2 - 1) = 0$$

$$12a(2a - 1)(2a + 1) = 0$$

$$\boxed{a = \left\{ 0, \frac{1}{2}, -\frac{1}{2} \right\}}$$

↑ ↑ ↑

NOTE FTOA $\Rightarrow$ 3rd degree has 3 answers

MAY HAVE TO USE A FACTORING
TECHNIQUE MORE THAN ONCE: ④

EX 3 Pg 502 FACTOR

$$2x^4 - 162$$

GCF 1st

$$2(x^4 - 81)$$

PATTERN
(DOS)

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

PATTERN
(DOS)

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

OVERVIEW (FACTORING POLYNOMIALS)

SO FAR 😊

① GCF

② LOOK for PATTERN (ex Dos)

③ 3 term $\Rightarrow$ try MAGIC
QUADRATIC NUMBER TECHNIQUE

or $ax^2 + bx + c$

$$\begin{array}{l} S \Rightarrow b \\ P \Rightarrow a \cdot c \\ \quad \swarrow \quad \searrow \\ \quad ? \quad ? \end{array}$$

④ 4 terms $\Rightarrow$ try FBG

OTHERWISE STUCK 😞

(6)

EX 4 Pg 502
AS EQUATION

Solve by factoring

$$5x^3 + 15x^2 - 5x - 15 = 0$$

$$5(x^3 + 3x^2 - x - 3) = 0$$

$$5[(x^3 + 3x^2) + (-x - 3)] = 0$$

$$5[x^2(\underline{x+3}) + -1(\underline{x+3})] = 0$$

$$5[(x+3)(x^2 - 1)] = 0$$

$$5[(x+3)(x-1)(x+1)] = 0$$

$$x = \{-3, 1, -1\}$$

NOTE FTOA, 3rd degree has 3 solutions

Practice

Pg. 504 # 2 → 6

Homework:

- Read Ch. 9-5
 - Pg. 504-505
 - # 7, 8, 11, 34 to 36,
 - # 47, 49
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