Algebra I | Monday 3-11-13 | Class Notes

- Fraction/Sign Rules - Worksheet Reviews.

Ch. 6-6 Special Products of Binomials

(Ex) $(x+4)^2 \Rightarrow$ leads to a PST "Perfect Square Trinomial"

(Ex) $(2x-5)^2$

(Ex) $(x-7)^2$

$(x+3)(x-3) \Rightarrow$ leads to a "Difference of Squares" Binomial

Sign Rules

+, − SSA, KSS (Ex) $-4-5=-9$

DSS, BOW (Ex) $-4+5=1$

− − = + (Ex) $-4\overset{+}{(}\overset{-}{-}5=1$

•, ÷ SPDN (Ex) $-4(-5)=20$

(Ex) $\frac{-4}{-5}=\frac{4}{5}$

Fraction Rules

+, − Common Denominator (Ex) $\frac{1}{2}+\frac{1}{3}$

$\frac{\quad}{6}+\frac{\quad}{6}=\frac{\quad}{6}$

$\frac{3}{6}+\frac{2}{6}=\frac{5}{6}$

• $\frac{\text{tops}\cdot\text{tops}}{\text{bottoms}\cdot\text{bottoms}}$ (Ex) $\frac{1}{2}\cdot\frac{1}{3}=\frac{1}{6}$

÷ F⋮M (Ex) $\frac{\frac{1}{2}}{\frac{1}{3}}=\frac{1}{2}\cdot\frac{3}{1}=\frac{3}{2}$

NOT PERFECT SQ

(EX) $\sqrt{15} = \sqrt{15}$

$\sqrt{9} = 3$ ↑ $\sqrt{16} = 4$

SOMEWHERE BETWEEN 3 AND 4

PERFECT SQUARE

$\sqrt{16} = 4$

PERFECT SQUARE (1 to 400)

(EX)

1	36	121	256
4	49	144	289
9	64	169	324
16	81	196	361
25	100	225	400

NOT a PERF SQ

$\sqrt{x^2+5x+9}$

$= \sqrt{x^2+5x+9}$

FAIL

$x \quad 3$

PERF SQ.

$\sqrt{x^2+6x+9}$

$= (x+3)$

PROVE IT

$(x+3)^2 =$

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

$x^2 + 3x + 3x + 9$

x^2+6x+9 ✓

$$x^2 + 10x + 25$$

3 part test to see if PST

Test 1 is x^2 a PS

Test 3 is $10x = 2(5x)$

Test 2 is 25 a PS

$$(x + 5)^2$$

$$x^2 - 10x + 25$$

$$\boxed{(x - 5)^2}$$

$$(x-5)(x-5)$$

$$x^2 - 5x - 5x + 25$$

$$x^2 - 10x + 25 \checkmark$$

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

$$(a+b)^2$$ PST PATTERN

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

$$(x-5)(x+5)$$

CONJUGATES

$$x^2 + 5x - 5x - 25$$

$$x^2 - 25 \Rightarrow$$ DIFFERENCE OF SQUARES

$$(x-5)(x+5)$$

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

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

$(2y+3)(2y-3) = 4y^2 - 9$

$(5x-3)(5x+3) = 25x^2 - 9$

$36x^2 - 16 = (6x-4)(6x+4)$

$49x^2 - 1 = (7x+1)(7x-1)$

$$\frac{49x^2-1}{7x-1} = \frac{(7x-1)(7x+1)}{(7x-1)}$$

$$= 7x+1$$