November 14, 2016

$x^2 + 19x - 66 = 0$

$ac = -66$, $b = +19$

$x^2 + 22x - 3x - 66 = 0$

$x(x+22) - 3(x+22) = 0$ (+22 | −3)

$(x+22)(x-3) = 0$

① $x + 22 = 0$, $\boxed{x = -22}$

② $x - 3 = 0$, $\boxed{x = 3}$

} Solutions

Ck

$x = -22$

$(-22)^2 + 19(-22) - 66 = 0$

$484 - 418 - 66 = 0$

$66 - 66 = 0$

$0 = 0$ ✓

$x = 3$

$(3)^2 + 19(3) - 66 = 0$

$9 + 57 - 66 = 0$

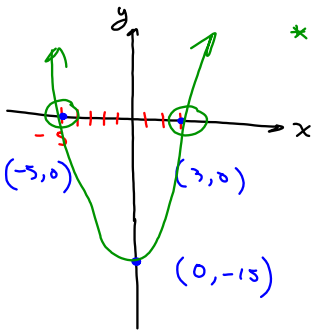
$66 - 60 = 0$

$0 = 0$ ✓

Nov 14-9:04 AM

$(x+5)(x-3) = x^2 + 2x - 15$

* { ① $x = -5$ ② $x = 3$



Nov 14-9:15 AM

Special Forms

e.g. $(x+5)(x-5)$

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

$= \boxed{x^2} - \boxed{25}$ → Squared term

↑ Difference

Squared term

Difference of Two Squares

Nov 14-9:20 AM

Difference of Two Squares

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

$4x^2 - 36$

$\boxed{a = 2x}$ → $(2x)^2 = 4x^2$

$\boxed{b = 6}$ → $6^2 = 36$

$(\overset{a}{2x} + \overset{b}{6})(\overset{a}{2x} - \overset{b}{6})$

Nov 14-9:23 AM

$\boxed{49y^2} - \boxed{81}$?

? ↑ Diff.

$a = 7y$ $b = 9$

$(7y+9)(7y-9)$

$49y^2 - 63y + 63y - 81$

$49y^2 - 81$ ✓

Nov 14-9:27 AM

$4x^2 - 25 = (2x+5)(2x-5)$

$\boxed{4x^2 + 25}$? Sum of Two Squares does not factor.

$a = 2x$ $b = 5$

$(2x+5)(2x+5)$

$4x^2 + 10x + 10x + 25$

$\boxed{4x^2 + 20x + 25} \neq 4x^2 + 25$

Nov 14-9:33 AM

$x^2 - 1$

$a = x \quad b = 1$

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

Nov 14-9:37 AM

$a^2 - b^2$

$169 - 16y^2$

$a = 13 \quad b = 4y$

$(13+4y)(13-4y) = 169 - 16y^2$

not $(4y+13)(4y-13)$

$16y^2 - 52y + 52y - 169$

$16y^2 - 169 \neq 169 - 16y^2$

Nov 14-9:39 AM

Sum & Difference of Two Cubes

Sum: $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

$8x^3 + 27$

$a = 2x \rightarrow (2x)^3 = 2^3 \cdot x^3 = 8x^3$

$b = 3 \rightarrow 3^3 = 27$

$(2x+3)(4x^2 - 6x + 9)$

Nov 14-9:43 AM