

Lesson 105: Advanced Factoring

1. $6x^2 + x - 2$

$6 \cdot (-2) = -12 = 4 \cdot (-3)$

$4 + (-3) = 1$

$(2x - 1)(3x + 2)$

$(2x-1)(3x+2) = 6x^2 + 4x - 3x - 2 = 6x^2 + x - 2$

2. Factor $2x^2 - 7x - 15$

$2 \cdot (-15) = -30 = (-10)(3)$

$(2x + 3)(x - 5)$

$(2x+3)(x-5) = 2x^2 - 10x + 3x - 15 = 2x^2 - 7x - 15$

$-9 + 4 = -5$

3. Solve $-5x - 6 = 6x^2$

$6x^2 = 5x + 6 = 0$

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

$3x + 2 = 0 \Rightarrow 3x = -2 \Rightarrow x = -\frac{2}{3}$

$2x - 3 = 0 \Rightarrow 2x = 3 \Rightarrow x = \frac{3}{2}$

$-36 = (-9)(4)$

$3 \cdot (-3) = -9$

$(3x + 2)(2x - 3) = 6x^2 - 9x + 4x - 6 = 6x^2 - 5x - 6$

4. Solve $-5x - 12 + 2x^2 = 0$

$2x^2 - 5x - 12 = 0$

$(2x + 3)(x - 4) = 0$

$2x + 3 = 0 \Rightarrow 2x = -3 \Rightarrow x = -\frac{3}{2}$

$x = 4$

$(2)(-12) = -24 = (-8)(3)$

$(2x + 3)(x - 4) = 2x^2 - 8x + 3x - 12 = 2x^2 - 5x - 12$

outers inners

Six of these in today's lesson. (#21=26)