2.5 Part 2

2.5 Factoring polynomial ax²+bx+c part 2

Example 1: Factor the polynomials.

a) $\dfrac{6x^2}{2} + \dfrac{20x}{2} - \dfrac{16}{2}$ $GCF = 2$

$2(3x^2 + 10x - 8)$ $\dfrac{x}{-2} \dfrac{}{+12} = -24$
                        $-2 + 12 = 10$

$3(-8)$

$2[3x^2 - 2x + 12x - 8]$

$2[x(3x-2) + 4(3x-2)]$

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

b) $\dfrac{-a^2}{-1} - \dfrac{19a}{-1} + \dfrac{20}{-1}$ $GCF = -1$

$-1(a^2 + 19a - 20)$ $\dfrac{x}{-1} \dfrac{}{+20} = -20$
                        $-1 + 20 = 19$

$(1)(-20)$

$-1[a^2 - 1a + 20a - 20]$

$-1[a(a-1) + 20(a-1)]$

$-1(a-1)(a+20)$

c) $\dfrac{-4x^2}{-4} - \dfrac{16x}{-4} + \dfrac{128}{-4}$ $GCF = -4$

$-4(x^2 + 4x - 32)$ $\dfrac{x}{-4} \dfrac{}{+8} = -32$
                        $-4 + 8 = 4$

$(1)(-32)$

$-4[x^2 - 4x + 8x - 32]$

$-4[x(x-4) + 8(x-4)]$

$-4[(x-4)(x+8)]$
        or
$-4(x-4)(x+8)$

d) $\dfrac{12x^2y}{2y} - \dfrac{14xy}{2y} - \dfrac{40y}{2y}$ $GCF = 2y$

$2y(6x^2 - 7x - 20)$ $\dfrac{x}{8} \dfrac{}{+-15} = -120$
                        $8 + -15 = -7$

$6(-20)$

$2y[6x^2 + 8x - 15x - 20]$

$2y[2x(3x+4) - 5(3x+4)]$

$2y(3x+4)(2y-5)$

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