Feb 5 MCR3U

HW Day 1

1g) $2(a)(x) - 3(b)(x) - 2(a)(y) + 3(b)(y)$

$= 2a(x-y) - 3b(x-y)$

$= (x-y)(2a-3b)$

2a) $x^2 - 9x + 20$

$ac = 1 \times 20 = 20$ → 5×4, ~~5×4~~, $(-5) \times (-4)$

$b = -9$

$= (x-5)(x-4)$

2~~8~~h) $3y^2 + 12y - 15$

$= 3(y^2 + 4y - 5)$

$ac = 1 \times -5 = -5$ → ~~$(-5) \times 1$~~, $5 \times (-1)$

$b = 4$

$= 3(y+5)(y-1)$

3h) $3x^2 + 13m + 4$

$ac = 3 \times 4 = 12$ → ~~6×2~~, 12×1

$b = 13$

$= 3x^2 + 12x + x + 4$

If the question is correct → impossible to factor

$(3x+1)(x+4)$ is the answer if the question was supposed to be "$13x$" (not "$13m$")

$= 3x(x+4) + 1(x+4)$

$= (x+4)(3x+1)$

1h) $x^2 + y - xy - x$

$= x(x-1) + y(x-1)$

$= (x-1)(x-y)$

$ax^2 + bx + c$

5a) $a^2 - ab - 56b^2$ $\quad ac = 1 \times (-56) = -56b^2 \times 1$

$b = -b$

$(a - 8b)(a + 7b)$

$7b \times (-8)b$

4i) $c^2 - (2a-b)^2$

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

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

$a = c$

$b = (2a-b)$

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

5c) $m^4 - 5m^2 - 36$ $\quad m^2 \times m^2$

$ax^2 + bx + c$ $\quad x^2 = m^2$

$ac = m^2 \times -36 = -36m^2$

$b = -5m$

$(-9)_m \times 4m$

$-5m^2 = -5m \times m$

$b \quad x$

$= m^4 - 9m^2 + 4m^2 - 36$

$= m^2(m^2 - 9) + 4(m^2 - 9)$

$= (m^2 - 9)(m^2 + 4)$

$= (m^2 - (3)^2)(m^2 + 4)$

$= (m^2 + 4)(m + 3)(m - 3)$

5f) $x^3 - xy$

$= x(x^2 - y)$

5g) $2x^2 - 16x + 32$

$= 2(x^2 - 8x + 16)$

$= 2(x^2 - (2 \cdot 1 \cdot 4x) + 4^2$

$= 2(x-4)^2$

$a = x$

$b = 4$

4h) $(a+b)^2 - c^2$

$= (a+b+c)(a+b-c)$

$a = a+b$

$b = c$

2e) $a^2 - 3ab - 10b^2$

$= (a-5b)(a+2b)$

$x = a$

$ac = 1 \times -10b^2 = -10b^2$

$b = -3b$

$5b \times -2b$

$(-5b) \times (2b)$

2g) $x^2 + 8xy + 15y^2$

$= (x+5y)(x+3y)$

$ac = 15y^2 \longrightarrow 5y \times 3y$

$b = 8y$

3g) $10b^2 + b - 3$

$= 10b^2 - 5b + 6b - 3$

$= 5b(2b-1) + 3(2b-1) = (2b-1)(5b+3)$

$ac = 10 \times -3 = -30$ — $5x - 6$

$b = 1$

-5×6

5d) $2x^2 - 8$

$= 2(x^2 - 4)$

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

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

2.10 Exercise

45. $(x-y)^2 - (x+y)^2$ $\quad a = x-y$

$= [(x-y)+(x+y)][(x-y)-(x+y)]$ $\quad b = x+y$

$= [x-y+x+y][x-y-x-y]$

$= [2x][-2y]$

$= -4xy$