§5.4 #75

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

$= (x+y)(2x^2+2x-x-1)$

$= (x+y)(2x^2+x-1)$

$= 2x^3 + x^2 - x + 2x^2y + xy - y$

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

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

35 $(3+(4b+1))^2$

$= 3^2 + 2(3)(4b+1) + (4b+1)^2$

$= 9 + 6(4b+1) + (4b)^2 + 2(4b)(1) + 1^2$

$= 9 + 24b + 6 + 16b^2 + 8b + 1$

$= 16b^2 + 32b + 16$

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

$(5x^{257} - 133)^2$

$= (5x^{257})^2 - 2(5x^{257})(133) + 133^2$

Factoring by Grouping

$$ab + 3a + 2b + 6$$

$$= a(b+3) + 2(b+3)$$

$$= (b+3)\left(\frac{a(b+3)}{(b+3)} + \frac{2(b+3)}{(b+3)}\right)$$

$$= (b+3)(a+2)$$

Oct 8-11:23 AM

$(5x+6)(3x-2) = 15x^2 - 10x + 18x - 12$

$(-10)(18) = -180$

$(15)(-12) = -180$

$(6x+7)(3x+11)$

$= 18x^2 + 66x + 21x + 77$

$(66)(21) = 1386$

Magic!

1386

Factor $15x^2 + 8x - 12$

$(15)(-12) = -180$

Find numbers that SUBTRACT to give 8 AND Multiply together to give -180. Subtract because -180 is negative.

$8 = 9 - 1$ $\quad (9)(-1) = -9$

$8 = 10 - 2$ $\quad (10)(-2) = -20$

$= 15 - 7$ $\quad (15)(-7) = -105$

$= 20 - 12$ $\quad (20)(-12) = -240$

$= 18 - 10$ $\quad (18)(-10) = -180$ Sweet!

$15x^2 + 18x - 10x - 12$

$= 3x(5x+6) - 2(5x+6)$

$= (5x+6)(3x-2)$

Oct 8-11:26 AM

$42x^2 + 95x + 50$ $(42)(50) = 2100$

Find #s that sum to 95, and multiply to give 2100

$95 = 94 + 1$ 94 Higher

$= 85 + 10$ 850 Higher

$= 75 + 20$ 1500 Higher

$= 65 + 30$ 1950 Higher

$= 60 + 35$ 2100 Sweet!

$42x^2 + 60x + 35x + 50$

$= 6x(7x + 10) + 5(7x + 10)$

$= (7x + 10)(6x + 5)$

2 | 42
3 | 21
7

2 | 60
2 | 30
3 | 15
5

$-x^2+5x-6$

$= -(x^2-5x+6)$

Factor x^2-5x+6 $(x-3)(x-2)$

Negate the result $-(x-3)(x-2)$

Oct 8-11:42 AM

$72x^2 - 54x - 35$

$(72)(35) = -2520$

$(-84)(30) = -2520$

$72x^2 - 84x + 30x - 35$

$12x(6x-7) + 5(6x-7)$

$(6x-7)(12x+5)$

Shawn

Hon. Mention:
Nicholas.

2	2520
2	1260
2	630
3	315
3	105
5	35
	7

$2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5 \cdot 7$