Mathematics 11U

2.3a – Factoring x^2+bx+c

Mr. D. Hagen

Expand:

$(x+4)(x+5)$ Foil

$= x^2 + 5x + 4x + 20$

$= x^2 + 9x + 20$

Factor

$1x^2 + 9x + 20$

$= x^2 + 5x + 4x + 20$

$(x+4)(x+5)$

$\textcircled{x}+20$

$\textcircled{1}+9$

1, 20

2, 10

4, 5

(1) $x^2 - 14x + 45$

$= (x-5)(x-9)$

(x) 45

(+) -14

1, 45

3, 15

(5, 9)

(2) $x^2 - x - 12$

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

(x) -12

(+) -1

1, -12

2, -6

(3, -4)

(3) $x^2 + 7x + 10$

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

(x) 10

(+) 7

(2, 5)

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

$= (x-1)(x-5)$

(x) 4

(+) -5

(-1, -4)

2, 2

(5) $3x^2 - 9x - 210$

$= 3(x^2 - 3x - 70)$ (x) -70, (+) -3

$= 3(x - 10)(x + 7)$

$1, -70$

$2, -35$

$5, -14$

$7, -10$

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(6) $5x^2 + 10x - 175$

$= 5(x^2 + 2x - 35)$ (x) -35, (+) $+2$

$= 5(x - 5)(x + 7)$

$-1, 35$

$-5, 7$

(1) $x^2 - 21n + 108$

$(x-9)(x-12)$

(x) 108

(+) -21

-1, -108

-2, -54

-3, -36

-4, -27

-6, -18

-9, -12

= -21