12c. Expand & Simplify.

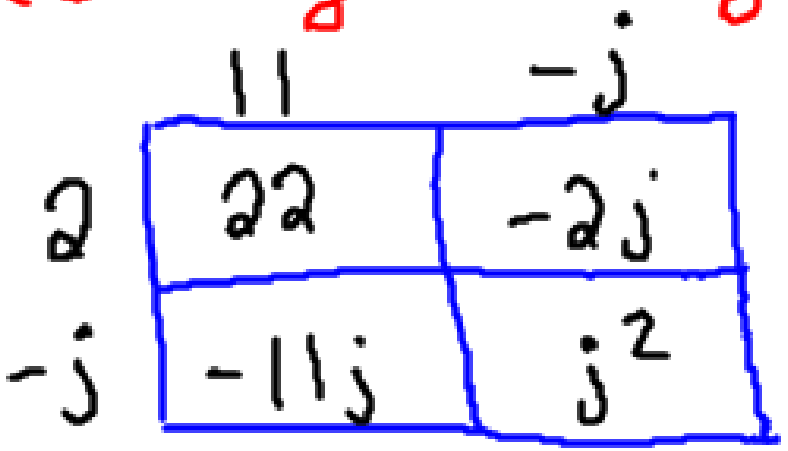
$(11-j)(2-j)$

3 methods

1) FOIL

2) Distributive property

→ 3) Rectangle Diagram



$22 - 2j - 11j + j^2$

$22 - 13j + j^2$

14a.

14e

14a) $b^2 + 19b - 20$

$-1 \quad 20 \quad -20$

$= (b - 1)(b + 20)$

* check. FOIL

$b^2 + 20b - b - 20$

$b^2 + 19b - 20$ ✓

14c) $a^2 - a - 20$

$-1a$

$(a + 4)(a - 5)$

1

*

$a(a - 5) + 4(a - 5)$

$a^2 - 5a + 4a - 20 = a^2 - a - 20$ ✓

-20

$-1 \quad 20$

$1 \quad -20$

$-2 \quad 10$

$2 \quad -10$

$-4 \quad 5$

$4 \quad -5$ $= -1$

Factor

- algebra tiles (length & width)
  - ↳ make equal groups.
- GCF - common factor between terms.

- trinomials ~ no common factor
  - → $ax^2 + bx + c$
    - ↑ $a = 1$

ex1 $x^2 + 5x + 6$

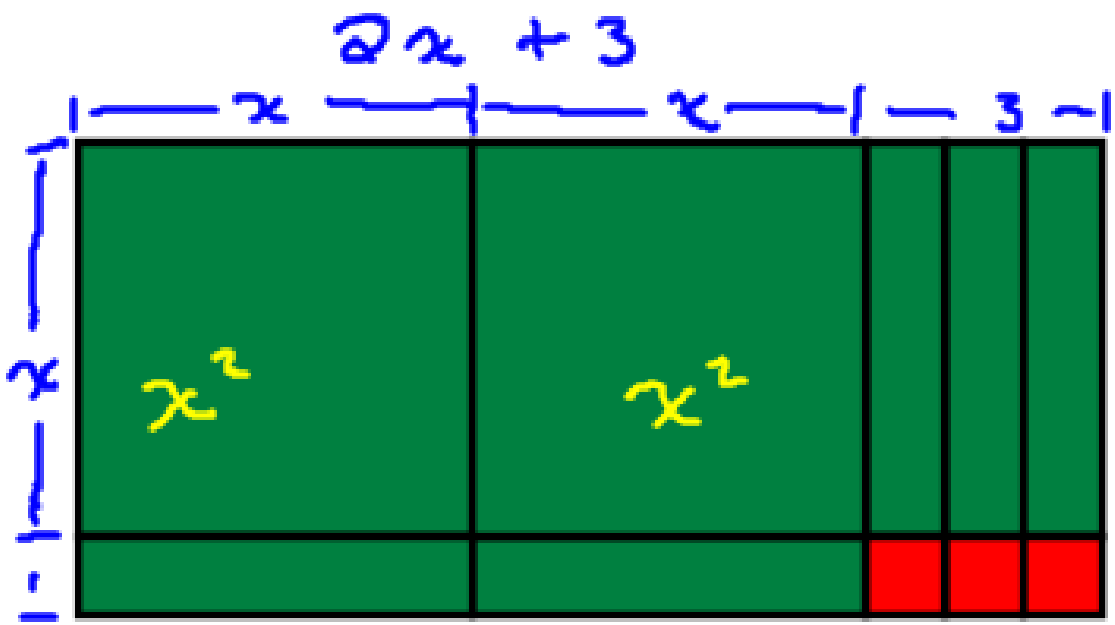
$(x + 2)(x + 3)$

factors of 'c' that add to 'b'

1 6

2 3

3.6 Polynomials of the Form $ax^2 + bx + c$



$a \neq 1$

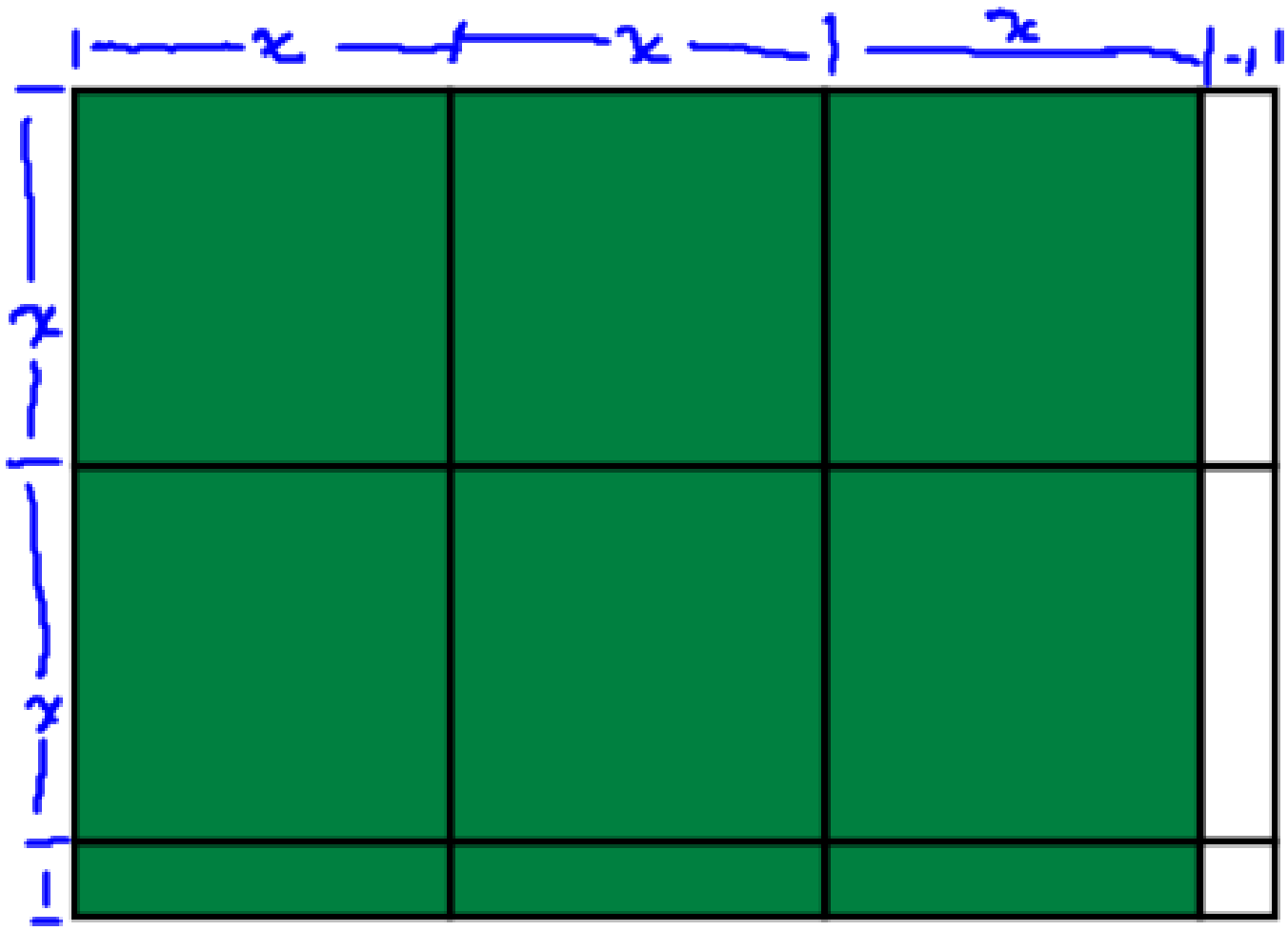
$$2x^2 + 5x + 3 = (2x+3)(x+1)$$

multiplication sentence

Area model

	2x	3
x	$2x^2$	$3x$
1	$2x$	3

* box method



$$6x^2 - 2x + 3x - 1$$

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

area model

	$3x$	-1
$2x$	$6x^2$	$-2x$
1	$+3x$	-1

Factoring by Decomposition

$2x^2 + 10x + 12$

* always check for a common factor first. *

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

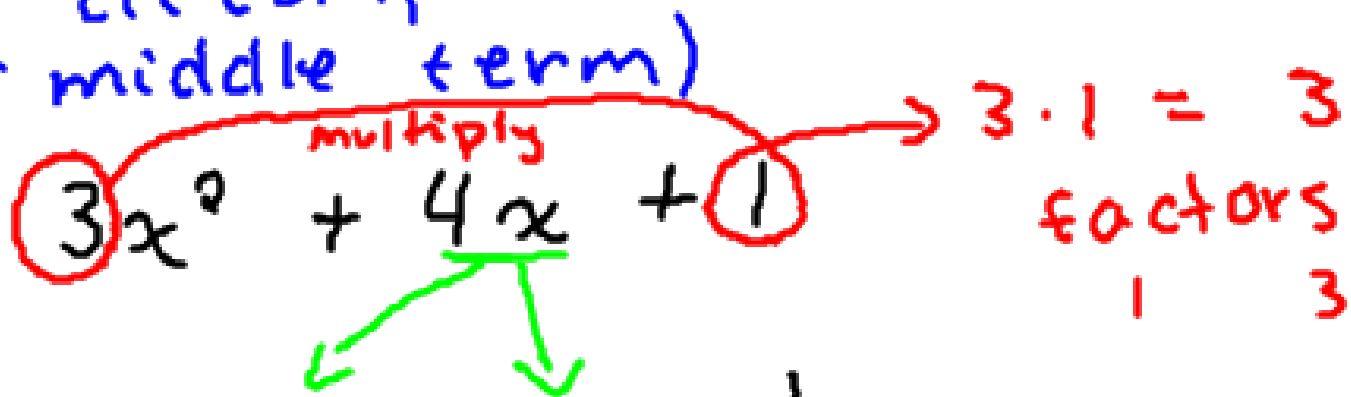
$2(x + 2)(x + 3)$

Factors of 6 that add to 5

Factor: $3x^2 + 4x + 1$

Is there a common factor? No.

* use decomposition. (we will decompose bx or middle term)



$3x^2 + 3x + x + 1$

* arrange the decomposed term so that you can group with a common factor.

$3x(x + 1) + 1(x + 1)$

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

$3x^2 + x + 3x + 1$

$3x^2 + 4x + 1$ ✓

Factor: $6x^2 + 23x + 20$

$6 \cdot 20 = 120$

factors of 120	
1	120
2	60
3	40
4	30
5	24
6	20
8	15 :23

$6x^2 + 8x + 15x + 20$

* $2x(3x + 4) + 5(3x + 4)$

$= (3x + 4)(2x + 5)$

* $2x\,a + 5a$

$a(2x + 5)$

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

Factor:

p. 177 #5, 7, 8, 9, 13

Do p. 177 - #5-9
p. 178 - #14-18