

P. 155

$$10b. \quad 27n + 36 - 18n^3$$

$$27n = \underbrace{3 \cdot 3 \cdot 3 \cdot n \cdot 1}_{3n}$$

$$36 = \underbrace{2 \cdot 2 \cdot 3 \cdot 3 \cdot 1 \cdot 4}$$

$$-18n^3 = \underbrace{2 \cdot 3 \cdot 3 \cdot n \cdot n \cdot n \cdot 1}_{-2n^3}$$

$$\text{GCF} = 3 \cdot 3 = 9$$

$$9(3n + 4 - 2n^3)$$

$$27n + 36 - 18n^3 \quad \checkmark$$

$$5b. \quad 4m, \quad m^2$$

$$4m = \underline{2} \cdot \underline{2} \cdot \textcircled{m}$$

$$m^2 = \underline{m} \cdot \textcircled{m}$$

$$GCF = m$$

$$6. \quad m^2 - 4m$$

$$m(m - 4)$$

$$\begin{array}{l} / \quad 4m - m^2 \\ m(4 - m) \end{array}$$

$$8a. \quad 9b^2 - 12b^3$$

$$9b^2 = \underline{3} \cdot 3 \cdot b \cdot b$$

$$-12b^3 = \underline{2} \cdot 2 \cdot 3 \cdot b \cdot b \cdot b \cdot -1$$

$$\text{GCF} = 3b^2$$

$$-4b$$

$$3b^2(3 - 4b)$$

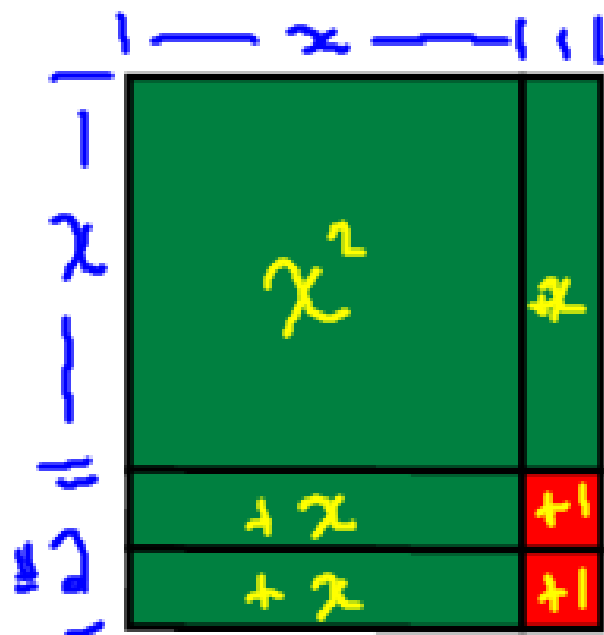
$$9b^2 - 12b^3$$



3.5 Polynomials of the Form $x^2 + bx + c$

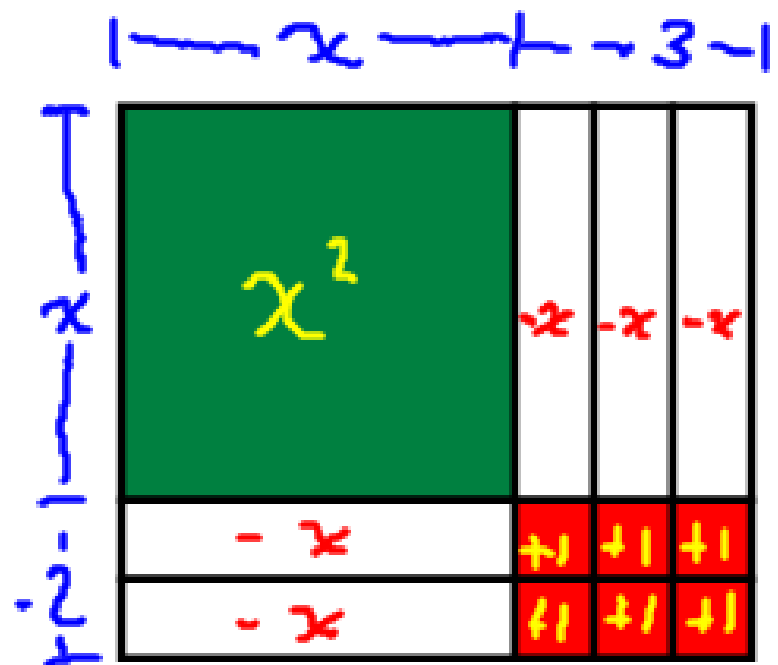
many terms

3 terms
Trinomial Factoring



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

binomial 2 terms



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

$$x^2 + \underline{3}x + \underline{2} = (x + \underline{2})(x + \underline{1})$$

$$x^2 - \underline{5}x + \underline{6} = (x - \underline{2})(x - \underline{3})$$

$$x^2 + \underline{7}x + \underline{10} = (x + \underline{2})(x + \underline{5})$$

$$x^2 + \underline{10}x + \underline{16} = (x + \underline{2})(x + \underline{8})$$

Is there a pattern?

$$x^2 + \underline{3}x + \underline{2} = (x + \underline{2})(x + \underline{1})$$

factors

add to 3.

Factor

$$\textcircled{1} \quad x^2 + \underline{9x} + \underline{20}$$

add to +9

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

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

$$x^2 + \underline{5x} + \underline{4x} + 20$$

$$x^2 + 9x + 20 \quad \checkmark$$

Factors of 20

$$+ \quad \underline{20}$$

$$+ \quad \underline{10}$$

$$+ \quad \underline{4} \quad \underline{5}$$

$$+ \quad \underline{20}$$

$$- \quad \underline{20} \quad \underline{-10}$$

$$- \quad \underline{4} \quad \underline{-5}$$

-9

② factor

$$x^2 + 12x + 32$$
$$= (x + 4)(x + 8)$$

Factors of 32

1	32
2	16
4	8

*FOIL

First, Outside, Inside, Last

$$x^2 + \underline{8x} + \underline{4x} + 32$$

$$x^2 + 12x + 32 \quad \checkmark$$

③ $x^2 + x - 12$

tells you which factor is positive.

+1

factors of -12

1	-12
-1	12
2	-6
-2	6
3	-4
-3	4

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

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

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

$x^2 + x - 12 \checkmark \quad \text{||}$

$-3 + 4 = 1$

Fill in the blanks

$$x^2 + \boxed{8}x + 12 = (x + 6)(x + 2)$$

$$x^2 + 3x + \boxed{2} = (x + 1)(x + 2)$$

$$x^2 + \boxed{-3}x - 28 = (x - 7)(x + 4)$$

p. 166

4, 5, 9 - 11

$\frac{1}{2}$