

Name: _____

Date: _____

Notes

Algebra Section 9.2

Pages 562-568

Goal: “You will multiply Polynomials”
“You will use the FOIL method”



Multiply a monomial and a polynomial:

Distribute- Remember to add your exponents.

Example: $y(3y^2 + 4)$

Try These:

Ex: $x(7x^2 + 4)$

$7x^3 + 4x$

Ex: $3x^2(2x^3 - x^2 + 4x + 3)$

$6x^5 - 3x^4 + 12x^3 + 9x^2$

Ex: $(2x^3)(x^3 + 3x^2 - x + 5)$

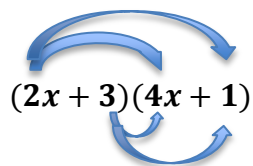
$2x^6 + 6x^5 - 2x^4 + 10x^3$

Ex: $4ab(3a^2b + 2ab^3)$

$12a^3b^2 + 8a^2b^4$

Multiply Binomials: FOIL

F-
O-
I-
L-



$8x^2 + 14x + 3$

Ex: $(x - 3)(3x + 2)$

$3x^2 - 7x - 6$

Ex: $(a + 3)(2a + 1)$

$2a^2 + 7a + 3$

Ex: $(4n - 1)(n + 5)$

$4n^2 + 19n - 5$

Ex: $(x + 4)(2x - 1)$

$2x^2 + 7x - 4$

Multiplying Polynomials: Repeated distribution

Ex: $(b^2 + 6b - 7)(3b - 4)$

$$3b^3 - 4b^2 + 18b^2 - 24b - 21b + 28$$
$$3b^3 + 14b^2 - 45b + 28$$

Ex: $(2x^2 + 5x - 1)(4x - 3)$

$$8x^3 + 14x^2 - 19x + 3$$

Ex: $(x^2 + 2x + 1)(x + 2)$

$$x^3 + 4x^2 + 5x + 2$$

Ex: $(3y^2 - y + 5)(2y - 3)$

$$6y^3 - 11y^2 + 13y - 15$$

Ex: $(a^2 + 3a - 4)(2a + 3)$

$$2a^3 + 9a^2 + a - 12$$

Ex: $(2x^2 - x - 2)(3x - 1)$

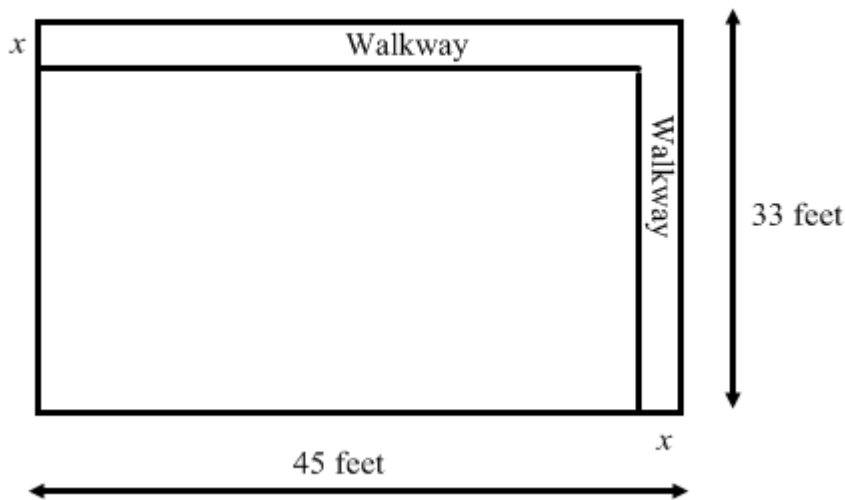
$$6x^3 - 5x^2 - 5x + 2$$

Ex: The dimensions of a rectangle are $x + 3$ and $x + 2$. Write a simplified expression to represent the area of the rectangle.

$$A = l \cdot w$$
$$(x + 3)(x + 2)$$
$$x^2 + 5x + 6$$

Ex: You are designing a rectangular skateboard park on a lot that is on the corner of a city block. The park will have a walkway along two sides that is x feet wide.

- Write a polynomial that represents the area of the skate park.



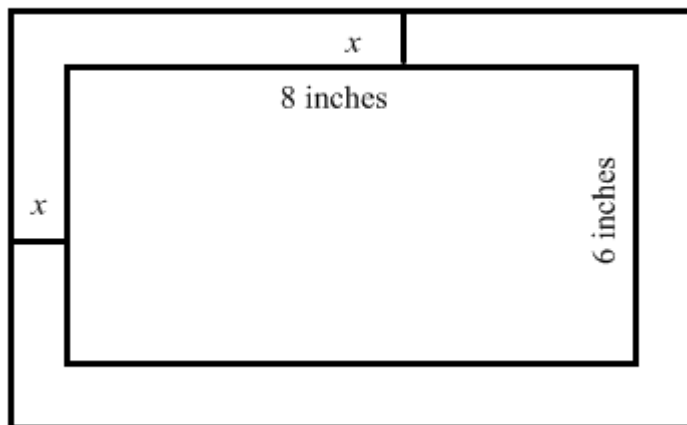
Length = $45 - x$ Width = $33 - x$ Area = $l \cdot w$ $(45 - x)(33 - x)$
 $1485 - 78x + x^2$

- What is the area if walkway is 3 feet wide? **Plug 3 into simplified expression.**

$1485 - 78(3) + (3)^2$
 1260 ft^2

Ex: A rectangular trivet has a ceramic center and wooden border.

- Write a polynomial that represents the total area.



Length = $8 + 2x$ Width = $6 + 2x$ $(8 + 2x)(6 + 2x)$
 $48 + 28x + 4x^2$

- What is the area if the width of the border is 2 inches?

120 in^2