

FOIL

$$(2x - 3)(x + 1)$$

Polynomials

LESSON ONE - *Expanding Polynomials*

Lesson Notes

Introduction

Find the product using algebra tiles:



a) $3(4x^2)$



b) $2x(x - 1)$



c) $(x - 2)(3x + 1)$



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Example 1

Monomial \times *Monomial*. Determine the product.

a) $3(2x^2)$

d) $(4x)^2$

b) $(5x)(7x)$

e) $2(3x)(5x)$

c) $(6a)(3ab)$

Example 2

Monomial \times *Binomial*. Determine the product.

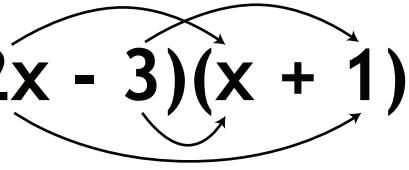
a) $-2x(3x - 1)$

c) $x^2(x^2 - 4)$

b) $-8a(a - ab)$

d) $(3x)^2(2x - 1)$

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Example 3

Binomial \times *Binomial*. Determine the product.

a) $(x + 1)(x + 2)$

c) $(3x - 2)^2$

b) $(2x - 3)(x + 4)$

d) $2(2x + 1)(4x - 5)$

Example 4

Binomial \times *Binomial continued*. Determine the product.

a) $(5x - 8)(5x + 8)$

c) $(2x + y)(x - 3y)$

b) $(3x - 2)(1 - 2x)$

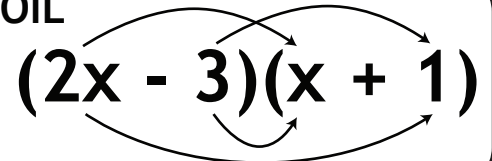
d) $3x(-5 - 2x)^2$

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Example 5

Multiplying with Trinomials. Determine the product.

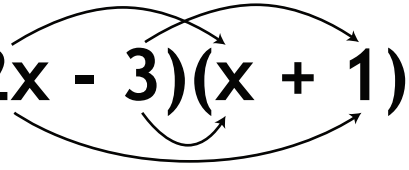
a) $(4x - 3y)(2 + 3x - y)$

c) $(3x - 1)^2(2x + 1)$

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

d) $(-2x^2 - x + 1)(-3x^2 + 3x - 2)$

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Example 6

Multi-term Expansions

a) $2x - 1 - (3x - 2)$

c) $3(x - 1)^2 - 2(2x - 3)^2$

b) $(x + 1)(4x - 3) + 4(x - 2)^2$

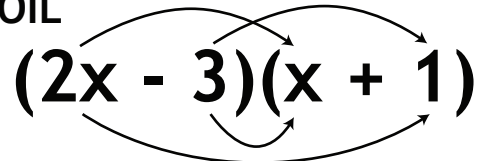
d) $2x(x - y) - (3x - 2y)(5x + y)$

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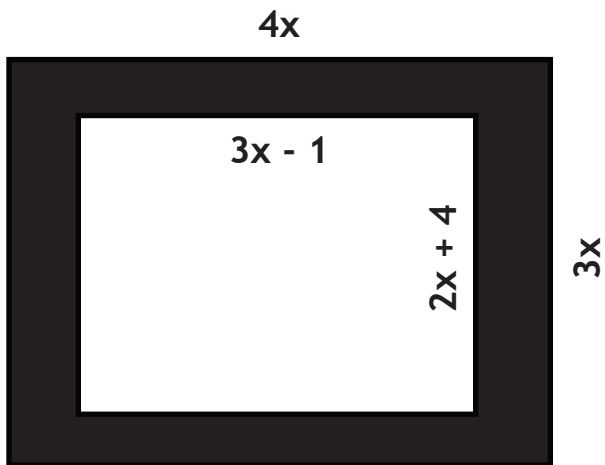
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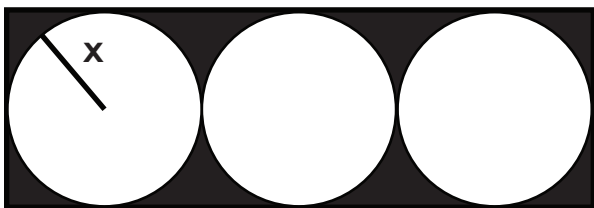
Example 7

Determine an expression for the shaded area.


a)



b)



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$$(2x - 3)(x + 1)$$


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Example 8

A piece of cardboard is made into an open box by cutting out squares from each corner.

The length of the piece of cardboard is 50 cm and the width is 25 cm. Each square has a side length of x cm.



a) Write expressions for the length and width of the box.

b) Write an expression for the area of the base.

c) Write an expression for the volume of the box.

d) What is the volume of the box if each removed corner square had a side length of 3 cm?

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Example 9

A picture frame has a white mat surrounding the picture.

The frame has a width of 27 cm and a length of 36 cm. The mat is 2 cm wider at the top and bottom than it is on the sides.

a) Write expressions for the width and length of the picture.

b) Write an expression for the area of the picture.

c) Write an expression for the area of the mat.

