

Lesson 1.2: Multiplying Polynomials

Specific Outcome: 4.4 – Verify a polynomial product by substituting numbers for the variables. 4.6 – Generalize and explain a strategy for multiplication of polynomials. 4.7 – Identify and explain errors in a solution for a polynomial multiplication.

BINOMIALS x BINOMIALS: TWO IMPORTANT PRODUCTS

Complete the following.

a) $(a + 3)^2 =$

b) $(a - 4)^2 =$

NOTE: a and b show _____, and their products are _____.

c) $(a + 5)(a - 5) =$

NOTE: c above shows the _____ (*these binomials are called **conjugates**), and their product is a _____. **** **(Pattern in easy expansion)**

Practice: Expand and simplify.

a) $(x + 7)^2$

b) $(2a - 5b)^2$

c) $(3a - 7)(3a + 7)$

d) $(4x + 5y)(4x - 5y)$

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

f) $-3(7 + 6y)(7 - 6y)$

Problem Solving:

1. A larger rectangle has dimensions $(4x + 7)$ cm by $(4x + 7)$ cm, and a smaller rectangle has dimensions $(3x - 2)$ cm by $(2x + 2)$ cm. What is the difference in their areas?

2.

Use the following information to answer the next question .

A student provides the following expansions for four binomial products.

$$(x + 3)^2 = x^2 + 9$$

$$(3x - y)(3x - y) = 9x^2 - 6xy - y^2$$

$$(2x + y)(2x - y) = 2x^2 - y^2$$

$$(5x + 7)^2 = 25x^2 + 35x + 49$$

How many of the student's expansions are incorrect?

- A. One
- B. Two
- C. Three
- D. Four

BINOMIALS x TRINOMIALS

Distributive Property:

$$(a + b)(c + d + e)$$

$$(c + d + e)(a + b) =$$

Consider: $(5x + 2)(x^2 - 2x - 1) =$

Practice: Expand and simplify.

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

b) $(3x^2 + 4x - 2)(x + 5)$

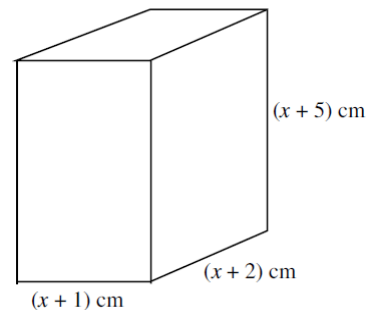
c) $(y + 2)^3$

d) $(a + 1)(a - 2)(a + 3)$

Problem Solving:

1a) The formula for the volume of a rectangular prism is $V = l \cdot w \cdot h$.

Write **an expression** (expanded and simplified) which represents the volume of this prism in cm^3 .



b) Determine the actual volume if $x = 10 \text{ cm}$.