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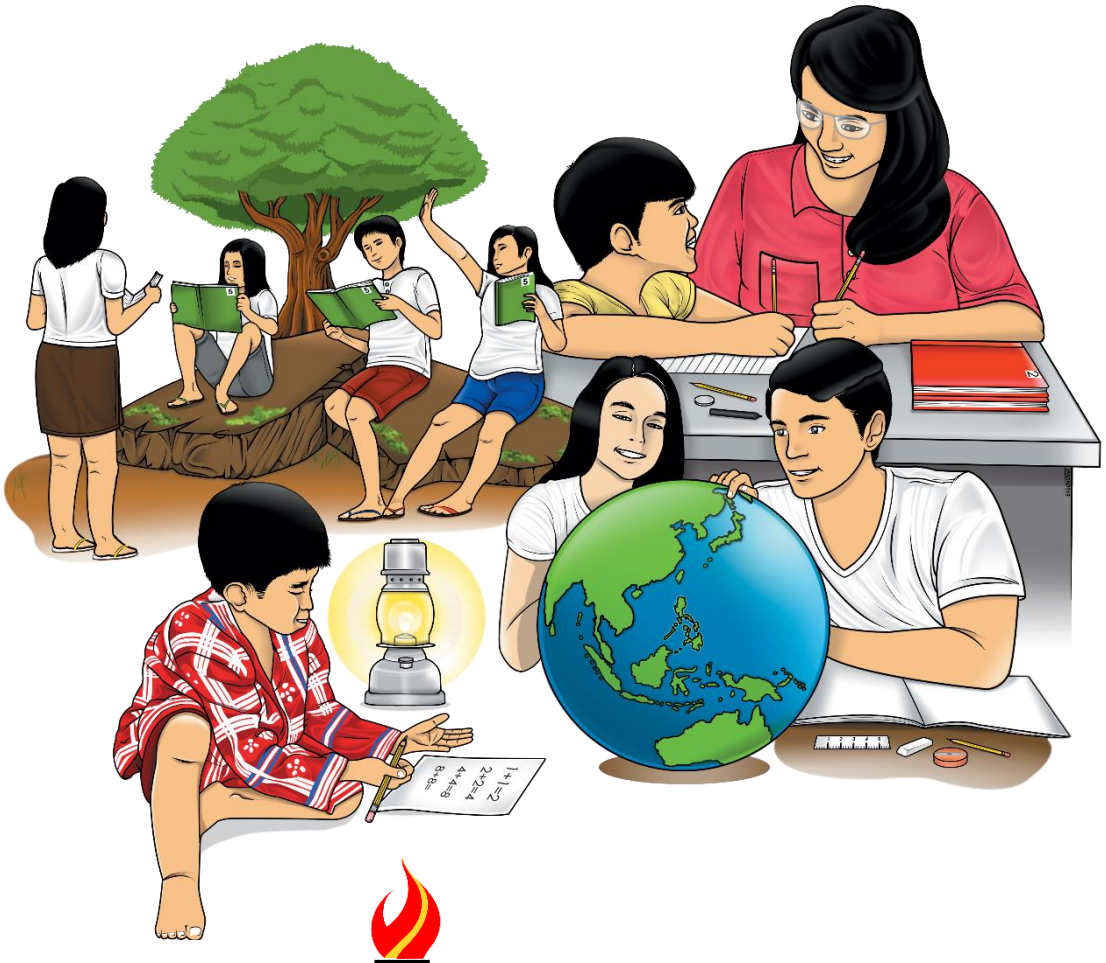
Mathematics

Quarter 2 – Module 6:
Special Products



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Mathematics

Quarter 2 – Module 6:
Special Products

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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

This module was designed and written with you in mind. It is here to help you master Special Products. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

The module is comprised of only one lesson:

- Special Products

After going through this module, you are expected to use models and algebraic methods to find the following:

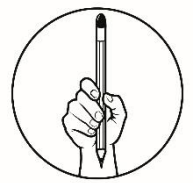
a.) product of two binomials;

b.) product of the sum and difference of two terms;

c.) square of a binomial;

d.) cube of a binomial; and

e.) product of a binomial and a trinomial



What I Know

Choose the letter of the best answer. Write the answer on a separate sheet of paper.

1. What is the product of $(x + 5)(x + 3)$?
   a. $x^2 + 8x + 15$
   b. $x^2 + 8x - 15$
   c. $x^2 - 8x + 15$
   d. $x^2 - 8x – 15$

2. Which of the following shows the cube of a binomial?
   a. $a^3 – 4$
   b. $(a – 4)^3$
   c. $a^3 + 6$
   d. $a + 6^3$

3. What kind of special product does the model on the right portray?

   a. Cube of a binomial
   b. Square of a binomial
   c. Product of two binomials
   d. Product of the sum and difference of two terms

4. What is the product of the given expression $(x + 4)(x – 4)$?
   a. $x^2 + 8$
   b. $x^2 - 8$
   c. $x^2 + 16$
   d. $x^2 - 16$

5. From the expressions $(2x – 2)(x – 1)$, what are the inner terms?
   a. 2x , x
   b. 2x , -1
   c. -2 , x
   d. -2 , -1

6. Which of the following is the same as $(x – 6)^2$?
   a. $x^2 – 12x - 36$
   b. $x^2 – 12x + 36$
   c. $x^2 + 12x - 36$
   d. $x^2 + 12x + 36$

7. Which is the same as $x^3 + y^3$?
   a. $(x + y)(x^2 – xy + y^2)$
   b. $(x + y)(x^2 + xy - y^2)$
   c. $(x - y)(x^2 – xy + y^2)$
   d. $(x - y)(x^2 + xy - y^2)$

8. What is the product of the given expression $(a + 3)^2$?
   a. $a^2 + 6a + 9$
   b. $a^2 + 6a - 9$
   c. $a^2 - 6a + 9$
   d. $a^2 - 6a - 9$

9. Which of the following is the product of the given expression $(x – 2)(x + 2)$?
   a. $2x^2 + 4$
   b. $2x^2 - 4$
   c. $x^2 + 4$
   d. $x^2 – 4$

10. Find the product of the given expression $(x + 2)(x^2 – 2x + 4)$?
   a. $x^3 - 8$
   b. $x^3 + 8$
   c. $x^3 - 4$
   d. $x^3 + 4$

11. Which of the following is the same as 43^2?
    a. $(40 + 3)^2$
    b. $(40 - 3)^2$
    c. $(40^2 + 3)$
    d. $(40 + 3^2)$

12. Which of the following is equivalent of (34) (26)?
    a. (30 + 4) (20 + 6)/2
    b. (40 - 6) + (20 + 6)
    c. (30 + 4) (30 – 4)
    d. (40 - 6) (20 + 6) (40-20)

13. Given the expression $(y – 4)^2$, find the product?
    a. $y^2 + 8y + 16$
    b. $y^2 – 8y + 16$
    c. $y^2 – 8y - 16$
    d. $y^2 + 8y + 16$

14. Which of the following is equivalent to $(a + 1)^3$?
    a. $a^3 + 3a^2 + 3a + 1$
    b. $a^3 + a^2 + a + 3$
    c. $a^3 + 1$
    d. $a^3 + 3$

15. Find the product of the given expression (2x – 1) (x – 3)?
    a. $2x^2 - 7x + 3$
    b. $2x^2 + 7x + 3$
    c. $2x^2 - 7x - 3$
    d. $2x^2 + 7x - 3$

Lesson 1 Special Products

In this lesson you will learn how to use models and algebraic methods to find a.) product of two binomials, b.) product of the sum and difference of two terms, c.) square of a binomial, d.) cube of a binomial, and e.) product of a binomial and a trinomial.

What's In

Recall that to find the product of two binomials, we use Distributive Property of Multiplication over Addition. Using this property, we multiply every term of one binomial by every term of the other binomial and combine like terms.

Examples for product of binomial

Find the product.

A. $(x + 2)(x + 3)$
B. $(2x + 1)(x – 1)$
C. $(3x – 2)(x – 2)$
D. $(3x + 3)(x + 2)$

Solution:

A. $(x + 2)(x + 3)$
$= (x)(x) + (x)(3) + (2)(x) + (2)(3)$
$= x^2 + 3x + 2x + 6$
$= \mathbf{x^2 + 5x + 6}$

B. $(2x + 1)(x – 1)$
$= (2x)(x) + (2x)(-1) + (1)(x) + (1)(-1)$
$= 2x^2 – 2x + x – 1$
$= \mathbf{2x^2 – x – 1}$

C. $(3x – 2)(x – 2)$
$= (3x)(x) + (3x)(-2) + (-2)(x) + (-2)(-2)$
$= 3x^2 – 6x – 2x + 4$
$= \mathbf{3x^2 – 8x + 4}$

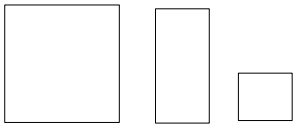
D. $(3x + 3)(x + 2)$
$= (3x)(x) + (3x)(2) + (3)(x) + (3)(2)$
$= 3x^2 + 6x + 3x + 6$
$= \mathbf{3x^2 + 9x + 6}$

What's New

At this part, let us use models and algebraic methods in finding a.) product of two binomials, b.) product of the sum and difference of two terms, c.) square of a binomial, d.) cube of a binomial, and e.) product of a binomial and a trinomial.

Activity 1.

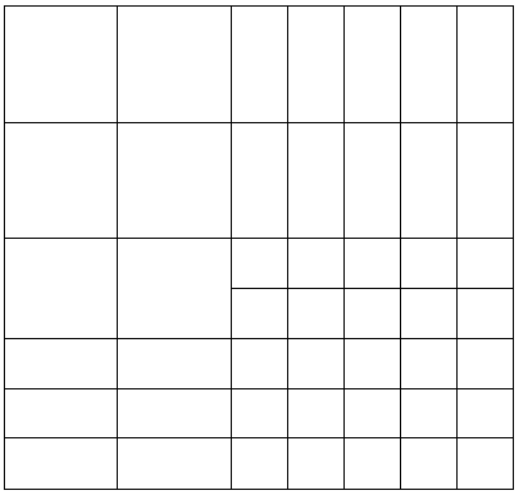
This activity uses algebra tiles to find the general formula for the product of two binomials. To do the activity, prepare several pages of newspapers and a pair of scissors. Cut at least three sheets of paper using the following pattern. Color the big square sheet in black, the rectangle sheet in red and the small square in yellow.



Task A: Write your answer to the following questions on a separate sheet of paper.

1. If the smallest figure is a square measuring 1 unit in each side, form a square that measures 2 units on each side. What is the area of this square?
2. Determine how many squares of 1 unit in each side will be used to cover the figure colored in black and in red.

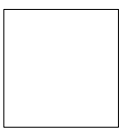
Cut additional sheets of paper and follow the pattern below to create a rectangle. Then answer the following questions below.



The figure on the left is formed by placing together the 6 large squares, 16 rectangles and 25 small squares. Let the small square measures 1 unit in each side, then the dimensions would be as follow:

 = 1 unit by 1 unit

 = 1 unit by 2 units

 = 2 units by 2 units

Suppose each large squares has a dimension of **x units**, the rectangle is **x units by 1 unit** and the small squares has a side length of **1 unit.**

Recall that the area of a square and a rectangle is determined by multiplying their lengths and their widths. Then determine the area of the large square, the rectangle and the small square.

Task B: Write your answer to the following questions in a separate sheet of paper.

1. What is the area of a rectangle when the rectangle has a length of x+2 and a width of x +1 using algebra tiles?
2. What is the area of the illustration represented by the algebra tiles above?

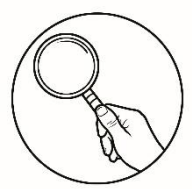
What is the product of x + 1 and x + 2? Is it the same as the area of the rectangle in Task B, Question No. 1?

Note that the area of a rectangle is the product of its length and its width and if the dimensions are represented by binomials, then the area of the rectangle is equivalent to the product of the two binomials which is $x^2 + 3x + 2$.

Task C: Write your answer to the following questions in a separate sheet of paper.

1. Use algebraic method to find the product of the following.
   a. (x + 2) (x + 3)
   b. (2x - 1) (x + 4)
   c. (2x + 1) (2x + 3)

2. How will you represent x - 1 using algebra tiles?



What is It

Use Models and Algebraic Methods to find the special product:

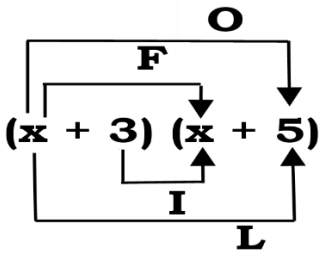
a). Product of Two Binomials

The product of (a + b) (c + d) is ac + ad + bc + bd. This is the general formula for the product of two binomials (a + b) (c + d).

The general form may be obtained using the FOIL method. The letters FOIL stands for **F**irst, **O**uter, **I**nner and **L**ast. First means multiply the terms which occur first in each binomial. The Outer means multiply the outer terms in each binomial. Inner means multiply the inner terms of the two binomials. And Last implies that we multiply the last terms of the two binomials. Then simplify the results by combining like terms.

Example 1. Find the product of (x + 3) (x + 5).

Solution:



First:	(x) (x)	$= x^2$	
Outer:	(x) (5)	= 5x	} add
Inner:	(3) (x)	= 3x	
Last:	(3) (5)	= 15	

(x + 3) (x + 5) $= x^2 + 5x + 3x + 15$

$= \mathbf{x^2 + 8x + 15}$

Example 2. Find the product of (x - 4) (3x + 2)

Solution:

(x - 4) (3x + 2)

First:	(x) (3x)	$= 3x^2$
Outer:	(x) (2)	= 2x
Inner:	(-4) (3x)	= -12x
Last:	(-4) (2)	= -8

(x + 4) (3x + 2) $= 3x^2 + 2x - 12x - 8$

$= \mathbf{3x^2 - 10x - 8}$

b). Product of the Sum and Difference of Two Terms

The product of the sum and difference of two terms is given where the first and second terms of the two binomials are the same, hence the only different is the operation sign, given by the general formula:

$$\mathbf{(a + b)(a - b) = a^2 - b^2}$$

The general formula $(a + b)(a - b) = a^2 - b^2$ is derived using the FOIL method.

$$(a + b)(a - b) = a^2 + ab - ab - b^2$$

Since the two middle terms are opposites, their sum is 0. Thus, the pattern of the product of the sum and difference of two terms is $a^2 - b^2$.

Example 1. Find the product of $(x + 5)(x - 5)$.

Solution:

Let $a = x$ and $b = 5$

Using the special product of the form $a^2 - b^2$, we have:

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

$= x^2 - 25$

Example 2. Find the product of $(3x + 4)(3x - 4)$.

Solution:

Let $a = 3x$ and $b = 4$

Using the special product of the form $a^2 - b^2$, we have:

$(3x + 4)(3x - 4) = (3x)^2 - (4)^2$

$= 9x^2 - 16$

c.) Square of a Binomial

The square of a binomial $\mathbf{(a \pm b)^2}$ is the product of a binomial when multiplied to itself. FOIL method can be used in finding the general formula of the square of a binomial.

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

$= a^2 + ab + ab + b^2$

$\mathbf{= a^2 + 2ab + b^2}$

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

$= a^2 - ab - ab + b^2$

$\mathbf{= a^2 - 2ab + b^2}$

- The ***first term*** of the product is always the *square of the first term* in the binomial.
- The ***second term*** of the product is always *twice the product of the two terms* in the binomial.
- The ***last term*** of the product is always the *square of the last term* in the binomial.

Example 1**.** Find the product of $(x + 4)^2$.

Solution:

Using the special product of the square of the binomial, we have:

$$(a + b)^2 = a^2 + 2ab + b^2$$

Let a = x and b = 4. Substituting these values, we get:

$$(x + 4)^2 = x^2 + 2(x)(4) + 4^2$$
$$= x^2 + 2(4x) + 4^2$$
$$= x^2 + 8x + 16$$

Example 2. Find the square of $(x - 6)^2$.

Solution:

Using the special product of the square of the binomial, we have:

$$(a - b)^2 = a^2 - 2ab + b^2$$

Let a = x and b = 6. Substituting these values, we get:

$$(x - 6)^2 = x^2 - 2(x)(6) + (6)^2$$
$$= x^2 - 2(6x) + (6)^2$$
$$= x^2 - 12x + 36$$

d.) Cube of a Binomial

The cube of a binomial can be expressed as $(a + b)^2(a + b)$ because of the Law of Exponents. By actually multiplying, we get:

$(a + b)^3 = (a + b)^2(a + b)$ Square the binomial.

$= (a^2 + 2ab + b^2)(a + b)$ Distributive Property

$= a^3 + 2a^2b + ab^2 + a^2b + 2ab^2 + b^3$ Combine similar terms

$$\mathbf{(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3}$$

The cube of a binomial (a + b) is the sum of four terms where each term can be obtained as follows:

First Term: The cube of a

Second Term: Three times the product of a^2 and b

Third Term: Three times the product of a and b^2

Fourth Term: The cube of b

For all numbers a and b, the cube of a binomial patterns are:

$$\mathbf{(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3}$$
$$\mathbf{(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3}$$

Example 1. Find the product of $(x + 5)^3$.
Solution:

Using the special product of the cube of the binomial, we have:

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

Let a = x and b = 5. Substituting these values, we get:

$$(x + 5)^3 = x^3 + 3(x)^2(5) + 3(x)(5)^2 + (5)^3$$
$$= x^3 + 3(5x^2) + 3(x)(25) + 125$$
$$= x^3 + 15x^2 + 75x + 125$$

Example 2. Find the product of $(x - 6)^3$.
Solution:

Using the special product of the cube of the binomial, we have:

$$(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

Let a = x and b = 6. Substituting these values, we get:

$$(x - 6)^3 = x^3 - 3(x)^2(6) + 3(x)(6)^2 – (6)^3$$
$$= x^3 - 3(6x^2) + 3(x)(36) - 216$$
$$= x^3 - 18x^2 + 108x - 216$$

e.) Square of Trinomials

The square of a trinomial (a + b + c) has six terms.

$$\mathbf{(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2ac + 2bc}$$

First term:	Square of the first term	$\mathbf{a^2}$
Second term:	Square of the second term	$\mathbf{b^2}$
Third term:	Square of the third term	$\mathbf{c^2}$
Fourth term:	Twice the product of the first term and the second term	**2ab**
Fifth term:	Twice the product of the first term and the third term	**2ac**
Sixth term:	Twice the product of the second term and the third term	**2bc**

Example 1: Find the product of $(x + 2y + 3z)^2$.
Solution:

First term:	$(x)^2$	$= x^2$
Second term:	$(2y)^2$	$= 4y^2$
Third term:	$(3z)^2$	$= 9z^2$
Fourth term:	2(x)(2y)	= 4xy
Fifth term:	2(x)(3z)	= 6xz
Sixth term:	2(2y)(3z)	= 12yz

Thus, $(x + 2y + 3z)^2 = x^2 + 4y^2 + 9z^2 + 4xy + 6xz + 12yz$.

Example 2. Find the product of $(2x - 3y + 4z)^2$.

Solution:

First term:	$(2x)^2$	$= 4x^2$
Second term:	$(-3y)^2$	$= 9y^2$
Third term:	$(4z)^2$	$= 16z^2$
Fourth term:	$2(2x)(-3y)$	$= -12xy$
Fifth term:	$2(2x)(4z)$	$= 16xz$
Sixth term:	$2(-3y)(4z)$	$= -24yz$

Thus, $(2x - 3y + 4z)^2 = 4x^2 + 9y^2 + 16z^2 – 12xy + 16xz – 24yz$.

f.) Product of a Binomial and a Trinomial

The product of a binomial and a trinomial can be expressed as the sum or difference of two cubes if they are in the following form:

$$(a + b)(a^2 – ab + b^2) \text{ or } (a - b)(a^2 + ab + b^2)$$

If the given is not of the above forms, the pattern is not applicable.

$(a+b)(a^2 – ab + b^2) = a(a^2 – ab + b^2) + b(a^2 – ab + b^2)$ Apply Distribute Property

$= a^3 – a^2b + ab^2 + a^2b – ab^2 + b^3$ Cancel out opposite terms

$= a^3 + b^3$

$(a - b)(a^2 + ab + b^2) = a(a^2 + ab + b^2) - b(a^2 + ab + b^2)$ Apply Distribute Property

$= a^3 + a^2b + ab^2 - a^2b – ab^2 - b^3$ Cancel out opposite terms

$= a^3 - b^3$

Thus, the general forms can now be stated as:

$$\mathbf{(a + b)(a^2 – ab + b^2) = a^3 + b^3}$$

$$\mathbf{(a - b)(a^2 + ab + b^2) = a^3 - b^3}$$

Example 1. Find the product of $(x + 3)(x^2 – 3x + 9)$.

Solution:

Using the special product of a binomial and a trinomial, we have:

$$(a + b)(a^2 – ab + b^2) = a^3 + b^3$$

Let a = x and b = 3. Substituting these values, we get:

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

$$= x^3 + 27$$

Example 2. Find the product of $(x - 4)(x^2 + 4x + 16)$

Solution:

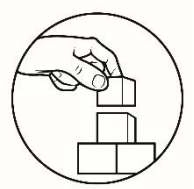
Using the special product of a binomial and a trinomial, we have:

$$(a - b)(a^2 + ab + b^2) = a^3 - b^3$$

Let a = x and b = 4. Substituting these values, we get:

$$(x - 4)(x^2 + 4x + 16) = (x)^3 - (4)^3$$

$$= x^3 - 64$$



What's More

Do the following activities as directed.

Activity 1. Use the algebra tiles to find the product of the following:

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

Activity 2. *Use the patterns on finding the product of the following. Show your solutions.*

1. $(a + 2)(a - 5)$
2. $(b + 4)(b + 3)$
3. $(c + 3)(c - 3)$
4. $(d - 5)(d + 5)$
5. $(m + 6)^2$
6. $(n - 8)^2$
7. $(p - 1)^3$
8. $(x + 5)^3$
9. $(x + 2)(x^2 - 2x + 4)$
10. $(3x + 2y + z)^2$

What I Have Learned

Find the product of the expressions found in column A. Match the correct answer in column B. Write only the letter of your answer in the space provided.

		Column A	Column B
_____	1.	(x + 5) (x + 1)	a. x^2 -100
_____	2.	(3x + 5) (3x – 5)	b. $x^2 + 4x + 4$
_____	3.	(x + 2) (x + 2)	c. $x^3 + 6x^2 + 12x + 8$
_____	4.	(x + 2) (x + 2) (x + 2)	d. $9x^2$ - 25
_____	5.	(x + 10) (x - 10)	e. $x^2 + 6x + 5$
			f. $x^2 – 6x + 5$

What I Can Do

Use models and algebraic methods to find product of a binomial and a trinomial as follows:

1. (y + 2) (y^2 – 2y + 4)
2. (3x + 2) ($9x^2$ – 6x + 4)

Assessment

Multiple Choice. Choose the letter of the correct answer. Write you answer on a separate sheet of paper.

1. What is the product of $(2x - 3)(3x + 4)$?
   A. $6x^2 - x - 12$
   B. $6x^2 - x + 12$
   C. $6x^2 - 17x - 12$
   D. $6x^2 - 17x + 12$

2. Which of the following shows the cube of a binomial?
   A. $p + 27$
   B. $p^3 + 27$
   C. $p^3 - 27$
   D. $(p + 27)^3$

3. What is the third term in the product of $(x + 2y + 3z)^2$?
   A. $3z$
   B. $3z^2$
   C. $9z$
   D. $9z^2$

4. What is the product of the given expression $(x + 7)(x – 7)$?
   A. $(x^2 + 14)$
   B. $(x^2 - 14)$
   C. $(x^2 + 49)$
   D. $(x^2 - 49)$

5. From the expressions $(5x – 2)(x – 3)$, what are the inner terms?
   A. $2x , x$
   B. $2x , -1$
   C. $-2 , x$
   D. $-2 , -1$

6. Which of the following is the same as $(x – 9)^2$?
   A. $x^2 – 18x - 81$
   B. $x^2 – 18x + 81$
   C. $x^2 + 18x - 81$
   D. $x^2 + 18x + 81$

7. Which of the following is the same as $a^3 + b^3$?
   A. $(a + b)(a^2 – ab + b^2)$
   B. $(a + b)(a^2 + ab - b^2)$
   C. $(a - b)(a^2 – ab + b^2)$
   D. $(x - b)(a^2 + ab - b^2)$

8. What is the product of the given expression $(y + 5)^2$?
   A. $y^2 + 10y + 25$
   B. $y^2 + 10y - 25$
   C. $y^2 – 10y + 25$
   D. $y^2 - 10a + 25$

9. Which of the following is the product of the given expression $(x – 10) (x + 10)$?
   A. $2x^2 + 100$
   B. $2x^2 - 100$
   C. $x^2 + 100$
   D. $x^2 – 100$

10. Find the product of the given expression $(x - 10) (x^2 + 10x + 100)$?
   A. $x^3 - 1000$
   B. $x^3 + 1000$
   C. $x^3 - 100$
   D. $x^3 + 100$

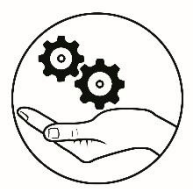
11. What is the product of the given expression $(a + 2)^3$?
   A. $a^3 + 6a^2 + 6a + 2$
   B. $a^3 + 6a^2 + 6a + 6$
   C. $a^3 + 6a^2 + 12a + 6$
   D. $a^3 + 6a^2 + 12a + 8$

12. What is the product of the expression $(x + 5) (x - 5)$?
   A. $x^2 + 10x -25$
   B. $x^2 + 10x +25$
   C. $x^2 - 25$
   D. $x^2 + 25$

13. Given the expression $(b – 1)^2$, find the product?
   A. $b^2 + 2b + 1$
   B. $b^2 – 2b + 1$
   C. $b^2 – 2b - 1$
   D. $b^2 + 2b - 1$

14. What is the product of the expression $(t + 7)^2$?
   A. $t^2 – 14t - 49$
   B. $t^2 + 14t - 49$
   C. $t^2 – 14t + 49$
   D. $t^2 + 14t + 49$

15. Find the product of the given expression $(2d – 1) (d – 3)$?
   A. $2d^2 – 7d + 3$
   B. $2d^2 + 7d + 3$
   C. $2d^2 – 7d - 3$
   D. $2d^2 + 7d + 3$



Additional Activity

What should be multiplied to the given terms to get the sum or difference of two cubes? Then, give the product.

1. $(x - 7)$
2. $(x + 8)$
3. $(4x + 1)$
4. $(5x - 3)$
5. $(x^2 + 2x + 4)$

Answer Key

What I Know

1. A	11. A
2. B	12. C
3. B	13. B
4. D	14. A
5. C	15. A
6. B	
7. A	
8. A	
9. D	
10. B	

What's New

Task A

1. 2 units x 2 units = 4 unit^2
2. 3 units x 2 units = 6 unit^2

Task B

1. The area of the rectangle is $x^2 + 3x + 2$.

x^2	x
x	1
x	1

2. The area is the sum of all the algebra tiles
   $A = 6x^2 + 18x + 45$

Task C

1.a. $x^2 + 5x + 6$
 b. $2x^2 + 7x - 4$
 c. $4x^2 + 8x + 3$

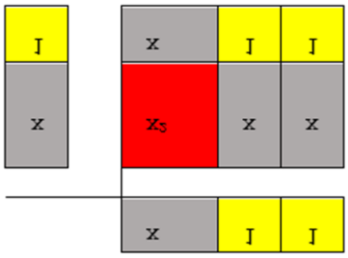
2. Color the tile -1 black to denote subtraction.

x	-1

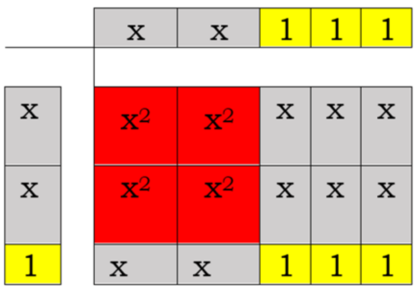
What's More

Activity 1

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



2. $4x^2 + 8x + 3$



Activity 2

1. $a^2 - 3a - 10$
2. $b^2 + 7b + 12$
3. $c^2 - 9$
4. $d^2 - 25$
5. $m^2 + 12m + 36$
6. $n^2 - 16n + 64$
7. $p^3 - 3p^2 + 3p - 1$
8. $x^3 + 15x^2 + 75x + 125$
9. $x^3 + 8$
10. $9x^2 + 4y^2 + z^2 + 12xy + 6xz + 4yz$

What I Have Learned

1. E	4. C
2. D	5. A
3. B	

What Can I Do

1. $y^3 + 8$
2. $27x^3 + 8$

Assessment

1. A	11. D
2. D	12. C
3. D	13. B
4. D	14. D
5. C	15. A
6. B	
7. A	
8. A	
9. D	
10. A	

Additional Activity

1. $x^2 + 7x + 49$;
   $x^3 - 343$
2. $x^2 - 8x + 64$;
   $x^3 + 512$
3. $16x^2 - 4x + 1$;
   $64x^3 + 1$
4. $25x^2 + 15x + 9$;
   $125x^3 - 27$
5. $x - 2$;
   $x^3 - 8$

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3. Charles P Mckeague, et.al. (2013). Basic College Mathematics Anvil Publishing, Inc. Mandaluyong City 1550 Philippines

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