

Curriculum Outcome

- (PR 5) Demonstrate an understanding of polynomials (limited to of degree less than or equal to 2).
- (PR 6) Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2).
- (PR 7) Model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially and symbolically.

Student Friendly:

"Multiplying polynomials by a constant "

Why are we doing this????



Multiplying Polynomials

We already know how multiply:

Mono x Mono

$$(5x^3y^6)(-7x^2y)$$

$$-35x^5y^7$$

Mono x Bi

$$(-2y^4)(8y^3 - 6x)$$

$$= -16y^7 + 12xy^4$$

Multiplying Polynomials

What about a

$$(Bi) \times (Bi)$$

$$(2x - 5)(3x + 8)$$

Two ways to do

Option 1
Arrows Method

$$(2x - 5)(3x + 8)$$

$$6x^2 + 16x - 15x - 40$$

$$6x^2 + x - 40$$

Option 2
Box Method

$$(2x - 5)(3x + 8)$$

	3x	+8
2x	$6x^2$	$16x$
-5	$-15x$	-40

$$6x^2 + 16x - 15x - 40$$

$$6x^2 + x - 40$$

Now you try!!

$$(4x^5 - 6y) (7x^5 - 6y)$$

$$28x^{10} - 24x^5y - 42x^5y + 36y^2$$

$$28x^{10} - 66x^5y + 36y^2$$

Now you try!!

$$(3rx^5 + 8xy)(9r^2x^3 - 6x^2y)$$

$$27r^3x^8 - 18rx^7y + 72r^2x^4y - 48x^3y^2$$

Multiplying Polynomials

What about a

(Bi) x (Tri)

$$(x^2 + 6)(5x^2 + 2x - 7)$$

Two ways to do

Option 1
Arrows Method

$$(x^2 + 6)(5x^2 + 2x - 7)$$

$$5x^4 + 2x^3 - 7x^2 + 30x^2 + 12x - 42$$

$$5x^4 + 2x^3 + 23x^2 + 12x - 42$$

Option 2 Box Method

$$(x^2 + 6)(5x^2 + 2x - 7)$$

	$5x^2$	$+2x$	-7
x^2	$5x^4$	$2x^3$	$-7x^2$
$+6$	$30x^2$	$+12x$	-42

$$5x^4 + 2x^3 - 7x^2 + 30x^2 + 12x - 42$$

$$5x^4 + 2x^3 + 23x^2 + 12x - 42$$

Multiplying Polynomials

What about a

(Tri) x (Tri)

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

Two ways to do

Option 1
Arrows Method

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

$$7x^4 - 56x^3 + 7x^2 + 4x^3 - 32x^2 + 4x - 3x^2 + 24x - 3$$

$$7x^4 - 56x^3 + 4x^3 + 7x^2 - 32x^2 - 3x^2 + 4x + 24x - 3$$

$$7x^4 - 52x^3 - 28x^2 + 28x - 3$$

Option 2 Box Method

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

	x^2	$-8x$	1
$7x^2$	$7x^4$	$-56x^3$	$7x^2$
$+4x$	$4x^3$	$-32x^2$	$+4x$
-3	$-3x^2$	$+24x$	-3

$$7x^4 - 56x^3 + 4x^3 + 7x^2 - 32x^2 - 3x^2 + 4x + 24x - 3$$

$$7x^4 - 52x^3 - 28x^2 + 28x - 3$$

Without Calculators

Chapter 5

Name _____ ID: 1

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Extra Material

Date _____ Period ____

Find each product.

1) $(6x + 7y)(4x + 3y)$

2) $(7x + y)(4x + 2y)$

3) $(2x - 3y)(8x - 3y)$

4) $(3x - 3y)(2x - 8y)$

5) $(6x - y)(6x^2 + 5xy + 4y^2)$

6) $(6u + 6v)(4u^2 - 4uv + 8v^2)$

7) $(5x + 6y)(6x^2 + 8xy - 4y^2)$

8) $(4x - 4y)(4x^2 - 3xy + 8y^2)$

Without Calculators

Chapter 5

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Name _____ ID: 1

Extra 2

Date _____ Period ____

Find each product.

1) $(2k^2 - 8k - 3)(6k^2 + 3k - 2)$

2) $(4r^2 + 7r + 2)(5r^2 - 5r - 3)$

3) $(2v^2 - 8v + 8)(2v^2 - 4v - 2)$

4) $(8b^2 - 6b + 7)(3b^2 - 6b + 5)$