

NOTES: MULTIPLYING BINOMIALS

QUESTIONS:

NOTES:

Recall: A Binomial has 2 terms.

When multiplying binomials you have two options:

- FOIL =

First . outside . inside . Last

- Box Method

Find the product:

1. $(x + 5)(x - 3) = \underline{x^2 + 2x - 15}$

F.O.I.L

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

Steps to F.O.I.L:

Multiply the First terms.

Multiply the Outer terms.

Multiply the Inner terms.

Multiply the Last terms.

$$x^2 \quad \boxed{-3x + 5x} \quad -15$$

$$\boxed{x^2 + 2x - 15}$$

Box Method

	x	-3
x	x^2	$-3x$
5	$5x$	-15

Add the like terms.

*on the diagonal

2. $(5x - 2)(3x + 7) = \underline{15x^2 + 29x - 14}$

F.O.I.L

$$(5x-2)(3x+7)$$

$$15x^2 \quad \boxed{+35x - 6x} \quad -14 \quad 5x$$

$$\boxed{15x^2 + 29x - 14} \quad -2$$

Box Method

	$3x$	7
$5x$	$15x^2$	$35x$
-2	$-6x$	-14

$$3. (4x + 2)(3x^2 + 4x + 5) = \underline{12x^3 + 22x^2 + 28x + 10}$$

$$12x^3 + 16x^2 + 20x + 6x^2 + 8x + 10$$

$$\boxed{12x^3 + 22x^2 + 28x + 10}$$

	$3x^2$	$4x$	5
$4x$	$12x^3$	$16x^2$	$20x$
2	$6x^2$	$8x$	10

$$4. (x - 8)^2 = \underline{(x - 8)(x - 8)}$$

$$= \underline{x^2 - 16x + 64}$$

$$(x - 8)(x - 8)$$

$$x^2 - 8x - 8x + 64$$

$$\boxed{x^2 - 16x + 64}$$

	x	-8
x	x^2	$-8x$
-8	$-8x$	$+64$

7-3 Practice

Form G

Multiplying Binomials

Find each product.

1. $(x+3)(x+8)$

$$x^2 + 11x + 24$$

	x	8
x	x^2	$8x$
3	$3x$	24

2. $(y-4)(y+7)$

$$y^2 + 3y - 28$$

	y	7
y	y^2	$7y$
-4	$-4y$	-28

3. $(m+9)(m-3)$

$$m^2 + 6m - 27$$

	m	-3
m	m^2	$-3m$
9	$9m$	-27

4. $(2x-6)(x+3)$

$$2x^2 - 18$$

	x	3
2x	$2x^2$	$6x$
-6	$-6x$	-18

5. $(n-5)(3n-4)$

$$3n^2 - 19n + 20$$

	3n	-4
n	$3n^2$	$-4n$
-5	$-15n$	20

6. $(k+5)^2 = (k+5)(k+5)$

$$k^2 + 10k + 25$$

	k	5
k	k^2	$5k$
5	$5k$	25

7. $(c-6)^2 = (c-6)(c-6)$

$$c^2 - 12c + 36$$

	c	-6
c	c^2	$-6c$
-6	$-6c$	$+36$

8. $(2r-5)(r+3)$

$$2r^2 + r - 15$$

	r	3
2r	$2r^2$	$6r$
-5	$-5r$	-15

9. $(3x+1)(5x-3)$

$$15x^2 - 4x - 3$$

	5x	-3
3x	$15x^2$	$-9x$
1	$5x$	-3

Simplify each product.

10. $(x+3)(x^2-2x+4)$

$$x^3 + x^2 - 2x + 12$$

	x^2	$-2x$	4
x	x^3	$-2x^2$	$4x$
3	$3x^2$	$-6x$	12

11. $(k^2-5k+2)(k-5)$

$$k^3 - 10k^2 + 27k - 10$$

	k	-5
k^2	k^3	$-5k^2$
$-5k$	$-5k^2$	$25k$
2	$2k$	-10

12. $(3a^2+a+4)(2a-6)$

$$6a^3 - 18a^2 + 2a - 24$$

	$2a$	-6
$3a^2$	$6a^3$	$-18a^2$
a	$2a^2$	$-6a$
4	$8a$	-24

13. $(2x^2+2x-6)(3x-4)$

$$6x^3 - 2x^2 - 26x + 24$$

	$3x$	-4
$2x^2$	$6x^3$	$-8x^2$
$2x$	$6x^2$	$-8x$
-6	$-18x$	24