

Homework #4 e)

$$\cancel{3w^2x} - \cancel{2wx} + \cancel{4x} - \cancel{6w^2} + 4w - 8$$
$$= (x-2)(3w^2-2w+4)$$

	$3w^2$	$-2w$	4
x	$3w^2x$	$-2wx$	$4x$
-2	$-6w^2$	$4w$	-8

4.3 Multiplying Binomials & Factoring Simple Trinomials

A. Multiplying Two Binomials using Box Method



1. $(x+2)(x+4)$
 $= x^2 + 2x + 4x + 8$
 $= x^2 + 6x + 8$

	x	2
x	x^2	$2x$
4	$4x$	8

2. $(x+5)(x+3)$
 $= x^2 + 8x + 15$

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

3. $(x-1)(x-2)$
 $= x^2 - 3x + 2$

	x	-1
x	x^2	$-x$
-2	$-2x$	2

4. $(x-3)(x-4)$
 $= x^2 - 7x + 12$



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

5. $(x+4)(x+6)$
 $= x^2 + 10x + 24$

	x	4
x	x^2	$4x$
6	$6x$	24

6. $(x-2)(x+8)$
 $= x^2 + 6x - 16$

	x	-2
x	x^2	$-2x$
8	$8x$	-16

$$x \overline{) -2x}$$

7. $(x-9)(x+3)$
 $= x^2 - 6x - 27$

	x	-9
x	x^2	$-9x$
3	$3x$	-27

8. $(x+1)(x-2)$
 $= x^2 - x - 2$

	x	1
x	x^2	x
-2	$-2x$	-2



B. Factoring Simple Trinomials

**simple trinomials have a leading coefficient of "1".

1. $x^2 + 8x + 15 = (x+3)(x+5)$

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

Multiplies \rightarrow 15
Adds \rightarrow 8
N $3, 5$

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

	x	2
x	x^2	$2x$
1	$1x$	2



M 2
A 3
N 2,1

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

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

Look for patterns!!!
M -15
A 2
N $5, -3$

4. $x^2 + 4x - 12 = (x+6)(x-2)$

	x	6
x	x^2	$6x$
-2	$-2x$	-12

M -12
A 4
N $6, -2$

5. $x^2 - 8x - 20 = (x+2)(x-10)$

	x	-10
x	x^2	$-10x$
2	$2x$	-20

M -20
A -8
N $2, -10$

6. $x^2 - 2x - 15 = (x-5)(x+3)$

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

M -15
A -2
N $3, -5$

7. $x^2 - 5x - 14 = (x-7)(x+2)$

Look for patterns!!!

	x	2
x	x^2	$2x$
-7	$-7x$	-14

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

	x	1
x	x^2	$1x$
-5	$-5x$	-5

9. $x^2 - 9x + 20 = (x-4)(x-5)$

	x	-5
x	x^2	$-5x$
-4	$-4x$	20

10. $x^2 - 5x + 4 = (x-4)(x-1)$

	x	-1
x	x^2	$-1x$
-4	$-4x$	4



remember:

"Factor" means $x^2 + 6x + 8 \Rightarrow (x+2)(x+4)$

"Expand" means $(x+2)(x+4) \Rightarrow x^2 + 6x + 8$

Homework:

Set 1: p.217 #3ab,4ab,5ace

p.240 #3ace,4ace,5aceg,6b

Set 2: p.217 #3a,4a,5ace

p. 240 #3a,4a,5ac,6b,7ab,8c,9c,11ab