Name _____ Block _____ Date _____

Factoring Trinomials where a>1

Factor each of the trinomials below. Use either the Box Method or Factor by Grouping. **You must write the expression with 4 terms BEFORE you begin to show your factoring work.**

1. $3x^2 - 7x - 6$

a: 3
b: -7
c: -6
a·c: -18

Factors of -18	Sum = -7
-1, 18	17
-2, 9	7
-3, 6	3
1, -18	-17
2, -9	-7
3, -6	-3

$3x^2+2x-9x-6$

	$3x^2$	$2x$	=-7
x			
-3	$-9x$	-6	
	$3x$	2	

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

2. $4x^2 - 15x + 9$

a: 4
b: -15
c: 9
a·c: 36

Factors of 36	Sum
1, 36	37
2, 18	20
3, 12	15
4, 9	13
6, 6	12
-3, -12	-15

$4x^2-3x-12x+9$

	$4x^2$	$-12x$	=-15
$4x$			
-3	$-3x$	9	
	x	-3	

$(4x-3)(x-3)$

3. $6x^2 - 5x - 6$

a: 6
b: -5
c: -6
a·c: -36

Factors of -36	Sum = -5
1, -36	-35
2, -18	-16
3, -12	-9
4, -9	-5
6, -6	0

$6x^2+4x-9x-5$

	$6x^2$	$4x$	=-5
$2x$			
-3	$-9x$	-6	
	$3x$	2	

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

4. $2x^2 - 7x - 4$

a: 2
b: -7
c: -4
a·c: -8

Factors of -8	Sum = -7
-1, 8	7
-2, 4	2
1, -8	-7
2, -4	-2

$2x^2+x-8x-4$

	$2x^2$	x	=-7
x			
-4	$-8x$	-4	
	$2x$	1	

$(2x+1)(x-4)$

5. $7x^2 - 8x + 1$

a: 7
b: -8
c: 1
a·c: 7

Factors of	Sum = -8
1, 7	8
-1, -7	-8

$7x^2 - 7x - x + 1$

	$7x^2$	$-1x$	= -8
x			
1	$-7x$	1	
	$7x$	-1	

$(x+1)(7x-1)$

6. $4x^2 - x - 5$

a: 4
b: -1
c: -5
a·c: -20

Factors of -20	Sum = -1
-1, 20	19
-2, 10	8
-4, 5	1
4, -5	-1

$4x^2 - 5x + 4x - 5$

	$4x^2$	$-5x$	= -1
x			
1	$4x$	-5	
	$4x$	-5	

$(4x-5)(x+1)$

7. $2x^2 + 7x + 3$

a: 2
b: 7
c: 3
a·c: 6

Factors of 6	Sum = 7
1, 6	7
2, 3	5
-1, -6	-7
-2, -3	-5

$2x^2 + x + 6x + 3$

	$2x^2$	x	= 7x
x			
3	$6x$	3	
	$2x$	1	

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

8. $6x^2 - x - 2$

a: 6
b: -1
c: -2
a·c: -12

Factors of -12	Sum = -1
-1, 12	11
-2, 6	4
-3, 4	1
-4, 3	-1
-6, 2	-4
-12, 1	-11

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

	$6x^2$	$-4x$	= -1
$2x$			
1	$3x$	-2	
	$3x$	-2	

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

9. $8x^2 + 10x - 3$

a: 8
b: 10
c: -3
a·c: -24

Factors of -24	Sum = 10
-1, 24	23
-2, 12	10
-3, 8	5
-4, 6	2

$8x^2 + 12x - 2x - 3$

	$8x^2$	$-2x$	= 10x
$2x$			
3	$12x$	-3	
	$4x$	-1	

$(2x+3)(4x-1)$

10. $4x^2 + 16x + 15$

a: 4
b: 16
c: 15
a·c: 60

Factors of 60	Sum = 16
1, 60	61
2, 30	32
3, 20	23
4, 15	19
5, 12	17
6, 10	16

$4x^2 + 6x + 10x + 15$

	$4x^2$	$6x$	= 16x
$2x$			
5	$10x$	15	
	$2x$	3	

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