

Name: _____ Block: _____ Date: _____

Factor the following expressions completely. (Remember to take out a greatest common factor first, if possible.)

1. $x^2 + 3x - 18$

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

Factors of -18

sum = 3

6 and -3

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

$(x+6)(x-3)$

2. $x^2 - 15x + 50$

$x^2 - 10x - 5x + 50$

Factors of 50

sum = -15

-10 and -5

x	x^2	$-10x$	$= -15x$
-5	$-5x$	50	
	x	-10	

$(x-5)(x-10)$

3. $2x^2 + 5x + 3$

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

Factors of 6

sum = 5

2 and 3

$2x$	$2x^2$	$2x$	$= 5x$
3	$3x$	3	
	x	1	

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

4. $3x^2 - 11x + 6$

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

Factors of 18

sum = -11

-2 and -9

x	$3x^2$	$-2x$	$= -11x$
-3	$-9x$	6	
	$3x$	-2	

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

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

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

Factors of 9

sum = -6

-3 and -3

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

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

6. $2x^2 + 11x + 12$

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

Factors of 24

sum = 11

3 and 8

$2x$	$2x^2$	$8x$	$= 11x$
3	$3x$	12	
	x	4	

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

7. $3x^2 - 14x - 5$

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

Factors of -15
sum = -14
1 and -15

$3x$	$3x^2$	$-15x$	$= -14x$
1	x	-5	
	x	-5	

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

8. $4x^2 - 20x + 25$

$4x^2 - 10x - 10x + 25$

Factors of 100
sum = -20
-10 and -10

$2x$	$4x^2$	$-10x$	$= -20x$
-5	$-10x$	25	
	$2x$	-5	

$(2x-5)(2x-5)$

9. $5w^2 + 13w - 6$

$5w^2 + 15w - 2w - 6$

Factors of -30
sum = 13
-2 and 15

$5w$	$5w^2$	$15w$	$= 13w$
-2	$-2w$	-6	
	w	3	

$(5w-2)(w+3)$

10. $7x^2 + 33x - 10$

$7x^2 + 35x - 2x - 10$

Factors of -70
sum = 33
-2 and 35

$7x$	$7x^2$	$35x$	$= 33x$
-2	$-2x$	-10	
	x	5	

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

11. $6x^2 - 15x + 6$

$3(2x^2 - 5x + 2)$
 $3(2x^2 - 4x - x + 2)$

Factors of 4
sum = -5
-1 and -4

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

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

12. $2x^2 + 10x - 28$

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

Factors of -14
sum = 5
-2 and 7

x	x^2	$7x$	$= 10x$
-2	$-2x$	-14	
	x	7	

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