Name _____ Date _____

Factoring Trinomials

Factor each trinomial equation. Example: $x^2 - 8x + 12 = (x - 6)(x - 2)$

1. $x^2 - 12x + 36 =$ $(x-6)(x-6)$

$x^2 - 6x - 6x + 36$

	x^2	$-6x$	$= -12x$
x			
-6	$-6x$	36	
	x	-6	

2. $x^2 + 24x + 144 =$ $(x+12)(x+12)$

$x^2 + 12x + 12x + 144$

	x^2	$12x$	$= 24x$
	$12x$	144	

3. $x^2 - 16x - 36 =$ $(x-18)(x+2)$

$x^2 - 18x + 2x - 36$

	x^2	$2x$	$= -16x$
x			
-18	$-18x$	-36	
	x	2	

4. $x^2 - 9x - 22 =$ $(x-11)(x+2)$

$x^2 - 11x + 2x - 22$

	x^2	$2x$	$= -9x$
	$-11x$	-22	
	x	2	

5. $x^2 + 18x + 32 =$ $(x+16)(x+2)$

$x + 16x + 2x + 32$

	x^2	$2x$	$= 18x$
x			
16	$16x$	32	
	x	2	

6. $x^2 - x - 56 =$ $(x-8)(x+7)$

$x^2 - 8x + 7x - 56$

	x^2	$7x$	$= -x$
	$-8x$	-56	

7. $6x^2 + 7x + 2 =$ $(3x+2)(2x+1)$

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

	$6x^2$	$3x$	$= 7x$
$3x$			
2	$4x$	2	
	$2x$	1	

8. $3x^2 + 2x - 16 =$ $(3x+8)(x-2)$

$3x^2 + 8x - 6x - 16$

	$3x^2$	$-6x$	$= 2x$
$3x$			
8	$8x$	-16	
	x	-2	

9. $6x^2 - 5x - 4 =$ $(3x-4)(2x+1)$

$6x^2 - 8x + 3x - 4$

	$6x^2$	$3x$	$= -5x$
$3x$			
-4	$-8x$	-4	
	$2x$	1	

10. $15x^2 - x - 2 =$ $(5x-2)(3x+1)$

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

	$15x^2$	$5x$	$= -x$
$5x$			
-2	$-6x$	-2	
	$3x$	1	

11. $18x^2 + 9x + 1 =$ $(3x+1)(6x+1)$

$18x^2 + 6x + 3x + 1$

	$18x^2$	$3x$	$= 9x$
$3x$			
1	$6x$	1	
	$6x$	1	

12. $20x^2 + 13x + 2 =$ $(4x+1)(5x+2)$

$20x^2 + 5x + 8x + 2$

	$20x^2$	$8x$	$= 13x$
$4x$			
1	$5x$	2	
	$5x$	2	

13. $5x^2 - 26x + 5 =$ $(x-5)(5x-1)$

$5x^2 - 25x - x + 5$

	$5x^2$	$-x$	$= -26x$
x			
-5	$-25x$	5	
	$5x$	1	

14. $x^2 - 9x - 10 =$ $(x-10)(x+1)$

$x^2 - 10x + x - 10$

	x^2	x	$= -9x$
x			
-10	$-10x$	-10	
	x	1	

Name _____ Date _____

Factoring Trinomials

Factor each trinomial equation. Example: $x^2 - 8x + 12 = (x - 6)(x - 2)$

1. $x^2 - 12x + 36 =$

$x^2 - 6x - 6x + 36$
$x(x-6) - 6(x-6)$
$(x-6)(x-6)$

2. $x^2 + 24x + 144 =$

$x^2 + 12x + 12x + 144$
$x(x+12) + x(x+12)$
$(x+12)(x+12)$

3. $x^2 - 16x - 36 =$

$x^2 - 18x + 2x - 36$
$x(x-18) + 2(x-18)$
$(x-18)(x+2)$

4. $x^2 - 9x - 22 =$

$x^2 - 11x + 2x - 22$
$x(x-11) + 2(x-11)$
$(x-11)(x+2)$

5. $x^2 + 18x + 32 =$

$x + 16x + 2x + 32$
$x(x+16) + 2(x+2)$
$(x+16)(x+2)$

6. $x^2 - x - 56 =$

$x^2 - 8x + 7x - 56$
$x(x-8) + 7(x-8)$
$(x-8)(x+7)$

7. $6x^2 + 7x + 2 =$

$6x^2 + 4x + 3x + 2$
$2x(3x+2) + 1(3x+2)$
$(3x+2)(2x+1)$

8. $3x^2 + 2x - 16 =$

$3x^2 + 8x - 6x - 16$
$x(3x+8) - 2(3x+8)$
$(3x+8)(x-2)$

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

$6x^2 - 8x + 3x - 4$
$2x(3x-4) + 1(3x-4)$
$(3x-4)(2x+1)$

10. $15x^2 - x - 2 =$

$15x^2 - 6x + 5x - 2$
$3x(5x-2) + 1(5x-2)$
$(5x-2)(3x+1)$

11. $18x^2 + 9x + 1 =$

$18x^2 + 6x + 3x + 1$
$6x(3x+1) + 1(3x+1)$
$(3x+1)(6x+1)$

12. $20x^2 + 13x + 2 =$

$20x^2 + 5x + 8x + 2$
$5x(4x+1) + 2(4x+1)$
$(4x+1)(5x+2)$

13. $5x^2 - 26x + 5 =$

$5x^2 - 25x - x + 5$
$5x(x-5) - 1(x+5)$
$(x-5)(5x-1)$

14. $x^2 - 9x - 10 =$

$x^2 - 10x + x - 10$
$x(x-10) + 1(x-10)$
$(x-10)(x+1)$

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