

Name: Key Date: _____ Period: _____

Factoring Worksheet- All Mixed Up

*Factor each expression completely using all of the steps/methods learned in class.

_____ / 50 points

#	Expression	Work	Final Answer
1.	$20x^2 + 16x$	$4x(5x+4)$	$4x(5x+4)$
2.	$x^2 - 100$	$(x-10)(x+10)$	$(x-10)(x+10)$
3.	$x^2 + 12x + 32$	M: 32 A: 12 (8, 4) $(x+8)(x+4)$	$(x+8)(x+4)$
4.	$x^2 + 4x - 5$	M: -5 A: +4 (5, -1) $(x+5)(x-1)$	$(x+5)(x-1)$
5.	$x^2 - 14x - 32$	M: -32 A: -14 (-16, 2) $(x-16)(x+2)$	$(x-16)(x+2)$
6.	$x^3 + 64$	a^3+b^3 x^3+4^3 $(x+4)(x^2-4x+16)$	$(x+4)(x^2-4x+16)$
7.	$x^2 + 12x + 32$	M: 32 A: 12 (8, 4) $(x+8)(x+4)$	$(x+8)(x+4)$
8.	$6x^2 - 7x - 5$	M: -30 A: -7 (+3, -10) $(6x^2-10x+3x-5)$ $2x(3x-5)+1(3x-5)$	$(3x-5)(2x+1)$
9.	$25x^2 - 49$	$(5x-7)(5x+7)$	$(5x-7)(5x+7)$
10.	$x^2 - 16x + 64$	M: 64 A: -16 (-8, -8) $(x-8)(x-8)$	$(x-8)^2$
11.	$16x^4 - 1$	$(4x^2-1)(4x^2+1)$ $(2x-1)(2x+1)(4x^2+1)$	$(4x^2+1)(2x-1)(2x+1)$
12.	$7x^2 + 21$	$7(x^2+3)$	$7(x^2+3)$

13.	$36x^2 - 121$	$(6x-11)(6x+11)$	$(6x-11)(6x+11)$
14.	$2x^2 - 10x - 28$	$2(x^2 - 5x - 14)$ M: -14 A: -5 $2(x-7)(x+2)$	$2(x-7)(x+2)$
15.	$3x^2 - 75$	$3(x^2 - 25)$ $3(x-5)(x+5)$	$3(x-5)(x+5)$
16.	$x^2 + 8x + 16$	M: 16 A: 8 $(x+4)(x+4)$	$(x+4)^2$
17.	$x^2 + 6x + 8$	M: 8 A: 6 $(x+4)(x+2)$	$(x+4)(x+2)$
18.	$5x^2 + 2x - 3$	M: -15 A: +2 (+5, -3) $(5x^2 + 5x)(-3x - 3)$ $5x(x+1) - 3(x+1)$	$(5x-3)(x+1)$
19.	$2x^2 - 18$	$2(x^2 - 9)$ $2(x-3)(x+3)$	$2(x-3)(x+3)$
20.	$16x^2 - 49$	$(4x-7)(4x+7)$	$(4x-7)(4x+7)$
21.	$2x^3 + 8x^2 + x + 4$	$(2x^3 + 8x^2)(x+4)$ $2x^2(x+4) + 1(x+4)$ $(x+4)(2x^2+1)$	$(x+4)(2x^2+1)$
22.	$x^4 - 17x^2 + 72$	M: 72 A: -17 (-9, -8) $(x^2 - 9)(x^2 - 8)$ $(x-3)(x+3)(x^2 - 8)$	$(x+3)(x-3)(x^2 - 8)$
23.	$2x^2 + 3x + 1$	M: 2 A: 3 $(2x^2 + 2x)(x+1)$ $2x(x+1) + 1(x+1)$	$(2x+1)(x+1)$
24.	$3x^3 + 9x^2 + 2x + 6$	$(3x^3 + 9x^2)(x+3)$ $3x^2(x+3) + 2(x+3)$	$(x+3)(3x^2+2)$
25.	$y^4 - 625$	$(y^2 - 25)(y^2 + 25)$ $(y-5)(y+5)(y^2 + 25)$	$(y-5)(y+5)(y^2+25)$
26.	$3x^2 + 10x + 3$	M: 9 A: 10 (9, 1) $(3x^2 + 9x)(x+3)$ $3x(x+3) + 1(x+3)$	$(3x+1)(x+3)$
27.	$2x^2 + x - 6$	M: -12 A: 1 (4, -3) $(2x^2 + 4x)(x-3)$ $2x(x+2) - 3(x+2)$	$(2x-3)(x+2)$

28.	$5x^2 - 11x + 2$	M: 10 A: -11 (-10, -1)	$(5x^2 - 10x)(-1x + 2)$ $5x(x-2) - 1(x-2)$	$(x-2)(5x-1)$
29.	$6x^2 + 15x + 9$	M: 6 A: 5 (3, 2)	$3(2x^2 + 5x + 3)$ $3(2x^2 + 3x)(+2x + 3)$ $3[x(2x+3) + 1(2x+3)]$	$3(2x+3)(x+1)$
30.	$7x^2 - 10x + 3$	M: 21 A: -10 (-7, -3)	$(7x^2 - 7x)(-3x + 3)$ $7x(x-1) - 3(x-1)$	$(x-1)(7x-3)$
31.	$4x^2 + 4x - 15$	M: -60 A: 4 (+10, 6)	$(4x^2 + 10x)(-6x - 15)$ $2x(2x+5) - 3(2x+5)$	$(2x+5)(2x-3)$
32.	$10x^3 - 25x^2 + 4x - 10$		$(10x^3 - 25x^2)(+4x - 10)$ $5x^2(2x-5) + 2(2x-5)$	$(2x-5)(5x^2+2)$
33.	$5x^2 + 5x - 30$	M: -6 A: 1 (3, -2)	$5(x^2 + x - 6)$ $5(x+3)(x-2)$	$5(x+3)(x-2)$
34.	$8x^3 - 32x$		$8x(x^2 - 4)$ $8x(x-2)(x+2)$	$8x(x-2)(x+2)$
35.	$x^2 - 4x - 60$	M: -60 A: -4 (-10, 6)	$(x-10)(x+6)$	$(x-10)(x+6)$
36.	$4x^2 - 10x - 24$	M: -24 A: -5 (-8, 3)	$2(2x^2 - 5x - 12)$ $2(2x^2 - 8x + 3x - 12)$ $2(2x(x-4) + 3(x-4))$	$2(x-4)(2x+3)$
37.	$6x^4 + 12x^2$		$6x^2(x^2 + 2)$	$6x^2(x^2 + 2)$
38.	$8x^3 - 343$		$8x^3 - 343$ $(2x)^3 - (7)^3$	$(2x-7)(4x^2 + 14x + 49)$
39.	$7x^4 + 21x^3$		$7x^3(x+3)$	$7x^3(x+3)$
40.	$9x^3 - 12x^2 + 3x - 4$		$(9x^3 - 12x^2)(+3x - 4)$ $3x^2(3x-4) + 1(3x-4)$	$(3x-4)(3x^2+1)$
41.	$10x^2 + 3x - 4$	M: -40 A: 3 (+8, 5)	$(10x^2 + 8x)(-5x - 4)$ $2x(5x+4) - 1(5x+4)$	$(5x+4)(2x-1)$
42.	$9x^2 - 1$		$(3x-1)(3x+1)$	$(3x-1)(3x+1)$

43.	$8x + 10$	$2(4x + 5)$	$2(4x + 5)$
44.	$16x^3 - 8x^2 + 12x$	$4x(4x^2 - 2x + 3)$ M: 12 A: -2	$4x(4x^2 - 2x + 3)$
45.	$2x^2 - 98$	$2(x^2 - 49)$ $2(x-7)(x+7)$	$2(x-7)(x+7)$
46.	$x^4 - 14x^2 + 49$	M: 49 A: -14 (-7, -7) $(x^2 - 7)(x^2 - 7)$	$(x^2 - 7)^2$
47.	$x^3 - 125$	$x^3 - 125$ $(x)^3 - (5)^3$ $(x-5)(x^2 + 5x + 25)$	$(x-5)(x^2 + 5x + 25)$
48.	$8x^4 + 6x - 28x^3 - 21$	$(8x^4 + 6x)(-28x^3 - 21)$ $2x(4x^3 + 3) - 7(4x^3 + 3)$	$(4x^3 + 3)(2x - 7)$
49.	$2x^2 - 46x + 120$	$2(x^2 - 23x + 60)$ M: 60 A: -23 $2(x-20)(x-3)$	$2(x-20)(x-3)$
50.	$16x^2 + 8x + 1$	M: 16 A: 8 (4, 4) $(16x^2 + 4x)(4x + 1)$ $4x(4x + 1) + 1(4x + 1)$	$(4x + 1)^2$