Math 2 – Honors
Unit 2 – Quadratic Function
Lesson 6 – More Practice with Factoring

Name_____
Date: _____ Pd: _____

Part I – GCF

1. $2z^2 + 16 =$ $2(z^2+8)$	6. $6c^4 - 9c =$ $3c(2c^3-3)$
2. $8g^2 + 20g =$ $4g(2g+5)$	7. $-9a^6 - 27a^5 - 12a^3 =$ $3a^3(-3a^3-9a^2-4)$
3. $8r^3 - 36r - 4 =$ $4(2r^3-9r-1)$	8. $18c^2 + 4c =$ $2c(9c+2)$
4. $28s^2 + 20s =$ $4s(7s+5)$	9. $-8y^6 + 4y^4 + 8 =$ $4(-2y^6+y^4+2)$
5. $16x^3 + 4x^2 + 36x =$ $4x(4x^2+x+9)$	10. $35v^6 - 15v^3 - 15v^2 =$ $5v^2(7v^4-3v+3)$

Part II – Difference of Two Squares

11. $x^2 - 16 =$ $(x-4)(x+4)$	16. $x^4 - 1$ $(x^2-1)(x^2+1)=(x-1)(x+1)(x^2+1)$
12. $36u^6 - 81w^2 =$ $9(4u^6-9w^2)$ $9(2u^3-3w)(2u^3+3w)$	17. $100k^4 - 49 =$ $(10k^2-7)(10k^2+7)$
13. $h^2 + 36 =$ Not a diff of squares	18. $p^8 - 25 =$ $(p^4-5)(p^4+5)$
14. $64 - 25j^{10} =$ $(8-5j^5)(8+5j^5)$	19. $4 - 36v^{12} =$ $4(1-9v^{12})$ $4(1-3v^6)(1+3v^6)$
15. $9s^2 - 16t^2 =$ $(3s-4t)(3s+4t)$	20. $144 + y^4 =$ Not a diff. squares

Part III – Trinomial Squares

21. $x^2 + 8x + 16 =$ $(x+4)(x+4)$	26. $x^2 - 4xy + 4y^2 =$ $(x-2y)^2$
22. $x^2 - 14x + 49 =$ $(x-7)(x-7)$	27. $2x^2 - 40x + 200 =$ $2(x^2-20x+100)=2(x-10)^2$
23. $9x^2 + 18xy + 9y^2 =$ $9(x^2+2xy+y^2)$ $9(x+y)^2$	28. $12x^2 + 36xy + 27y^2 =$ $3(4x^2+12xy+9y^2)=3(2x+3y)^2$
24. $16x^2 - 56xy + 49y^2 =$ $(4x-7y)^2$	29. $a^4 + 14a^2 + 49 =$ $(a^2+7)^2$
25. $x^2 - 6x + 9 =$ $(x-3)^2$	30. $4x^4 + 4x^2 + 1 =$ $(2x^2+1)^2$

Part IV – Trinomials in the form $x^2 + bx + c$

31. $x^2 - 6x - 7 =$ $(x-7)(x+1)$	36. $x^2 + 5x + 6 =$ $(x+2)(x+3)$
32. $s^2 + 12s + 35 =$ $(s+7)(s+5)$	37. $w^2 - 6w - 5 =$ $(w-5)(w-1)$
33. $p^2 - 9p + 20 =$ $(p-4)(p-5)$	38. $k^2 + 3k - 4 =$ $(k+4)(k-1)$
34. $b^2 + 5b - 36 =$ $(b+9)(b-4)$	39. $h^2 - 9h - 36 =$ $(h-12)(h+3)$
35. $p^2 - 8p - 9 =$ $(p-9)(p+1)$	40. $w^2 + 2w - 15 =$ $(w+5)(w-3)$

$2a(a^2-19a+88)$

Part V – Trinomials in the form $ax^2 + bx + c$

41. $2x^2 + 9x - 5 =$ $(x+10)(x-1)$ $(x+5)(2x-1)$ — $x^2+9x-10$

42. $16m^2 - 48m + 11 =$ $(m-\frac{44}{16})(m-\frac{4}{16})$ $(4m-11)(4m-1)$ — $m^2-48+176$

43. $3x^2 - 5x - 2 =$ $(x-6)(x+1)$ $(x-2)(3x+1)$ — x^2-5x-6

44. $20c^2 - 63c + 49 =$ $(c-28)(c-35)$ $(5c-7)(4c-7)$ — $c^2-63c+980$

45. $4u^2 + 37u + 63 =$ $(u+28)(u+9)$ $(u+7)(4u+9)$ — $u^2+37u+252$

46. $2a^3 - 38a^2 + 176a =$ $2a(a-11)(a-8)$

47. $2q^5 - 12q^4 - 80q^3 =$ $2q^3(q^2-6q-40)$ $2q^3(q-10)(q+4)$

48. $3d^2 + 18d + 15 =$ $3(d+5)(d+1)$ — $3(d^2+6d+5)$

49. $2x^2 - x - 15 =$ $(x-6)(x+5)$ $(x-3)(2x+5)$ — x^2-x-30

50. $3a^2 - 4a + 1 =$ $(a-\frac{3}{3})(a-\frac{1}{3})$ $(a-1)(3a-1)$ — a^2-4a+3

Part VI – Grouping

51. $4x^5 + 6x^3 + 6x^2 + 9 =$ $(2x^3+3)(2x^2+3)$ — $2x^3(2x^2+3)+3(2x^2+3)$

52. $c^6 - c^4 - c^2 + 1 =$ $(c^4-1)(c^2-1)$ $(c^4-1)(c-1)(c+1)$ — $c^4(c^2-1)-1(c^2-1)$

53. $4y^5 + 6y^4 + 6y^3 + 9y^2 =$ $(2y^4+3y^2)$ $(2y+3)$ — $2y^4(2y+3)+3y^2(2y+3)$

54. $x^{13} + x^7 + 2x^6 + 2 =$ $(x^7+2)(x^6+1)$ — $x^7(x^6+1)+2(x^6+1)$

55. $20g^3 - 4g^2 - 25g + 5 =$ $(4g^2-5)(5g-1)$ — $4g^2(5g-1)-5(5g-1)$

56. $7y^2 - 14y + by - 2b =$ $(7y+b)(y-2)$ — $7y(y-2)+b(y-2)$

57. $12xy + 3yz - 4x - z =$ $(3y-1)(4x+z)$ — $3y(4x+z)-1(4x+z)$

58. $20a + 12 - 25ax - 15x =$ $(4-5x)(5a+3)$ — $4(5a+3)-5x(5a+3)$

59. $4mnq + 4mnb + 5nq + 5nb =$ $(4mn+5n)(a+b)$ $n(4m+5)(a+b)$ — $4mn(a+b)+5n(a+b)$

60. $t^2 - 9t + 3t - 27 =$ $(t+3)(t-9)$ — $t(t-9)+3(t-9)$

Part VII– Mixed Factoring

61. $d^2 + d - 132 =$ $(d+12)(d-11)$

62. $p^2 - 100 =$ $(p-10)(p+10)$

63. $3v^4 + 9v^3 - 12v^2 =$ $3v^2(v+4)(v-1)$ — $3v^2(v^2+3v-4)$

64. $3h^2 + 44h + 121 =$ $(h+33)(h+11)$ $(h+11)^3(3h+11)$ — $h^2+44h+363$

65. $9x^{10} + 12x^5 + 4 =$ $(x^5+\frac{6}{9})(x^5+\frac{6}{9})$ $(3x^5+2)^2$ — $x^{10}+12x^5+36$

66. $3n^2 - 43n + 84 =$ $(n-\frac{36}{3})(n-\frac{7}{3})$ $(n-12)(3n-7)$ — $n^2-43n+252$

67. $f^2 + 121 =$ fully simplified

68. $4x^4 + 4x^2 + 1 =$ $(2x^2+1)^2$

69. $18c^3 - 21c^2 - 30c + 35 =$ $(3c^2-5)(6c-7)$ — $3c^2(6c-7)-5(6c-7)$

70. $z^2 - 6z - 72 =$ $(z-12)(z+6)$