Name:_____ Date:_____

Review Ditto of Factoring [redacted] Algebra

i. Vocabulary:

1. Numbers that divide other numbers exactly are called Factors	2. The answer to a multiplication problem is called the products
3. The largest term that exactly divides given terms is called the G.C.F	4. The product of two equal factors is called a (n) Perfect Squares
5. A number that has more than 2 factors is called a (n) composite	6. A method used to multiply two binomials double distribute or box method
7. A polynomial of 3 terms is called trinomial	8. The standard form of a trinomial ax^2+bx+c

ii. Find the second factor of $36a^3b^2c$ if the first factor is:

9. $4a^2b$ $\frac{36a^3b^2c}{4a^2b}$ $9abc$	10. $-12a^3c$ $\frac{36a^3b^2c}{-12a^3c}$ $-3b^2$
11. $6abc$ $\frac{36a^3b^2c}{6abc}$ $6a^2b$	12. $-9abc$ $\frac{36a^3b^2c}{-9abc}$ $-4a^2b$

Identify the steps for factoring using the G.C.F Method:

1.) Determine the G.C.F (highest # & lowest exponent)

2.) Divide each term by the G.C.F

3.) put G.C.F on the outside & the quotient on the inside of the parenthesis

4.) check by distributing

iii. Write the following using the G.C.F method:

13. $\frac{7-35d}{7\quad 7}$

$7(1-5d)$

14. $\frac{27a^2bc+18ab^2c}{3abc\quad 3abc}$

$3abc(9a+6b)$

15. $\frac{s^2r+s^3-s^4v}{s^2\quad s^2\quad s^2}$

$s^2(r+s+s^2v)$

16. $\frac{10r-10s}{10\quad 10}$

$10(r-s)$

17. $\frac{4x+x^2}{x\quad x}$

$x(4+x)$

18. $\frac{3x^2+6x+15}{3\quad 3\quad 3}$

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

19. $\frac{ax+3x}{x\quad x}$

$x(a+3)$

20. $\frac{xp+xq}{x\quad x}$

$x(p+q)$

21. $\frac{7y-7}{7\quad 7}$

$7(y-1)$

22. $\frac{\Pi r^2-\Pi r}{\Pi r\quad \Pi r}$

$\Pi r(r-1)$

- Identify the steps for factoring using the D.O.P.S Method:

1.) 2 set of parenthesis (+)(−)

2.) Take the square root of each perfect

3.) check by double distribute or box method perfect square

23. $x^2 - 196$

$(x+14)(x-14)$

24. $100 - d^2$

$(10-d)(10+d)$

25. $4x^2 - 64y^6$

$(2x+8y^3)(2x-8y^3)$

26. $\frac{25}{144} - 16y^4$

$\left(\frac{5}{12}+4y^2\right)\left(\frac{5}{12}-4y^2\right)$

27. $x^{10} - 144$

$(x^5-12)(x^5+12)$

28. $.81 - y^8$

$(.9-y^4)(.9+y^4)$

29. Factored, the expression $16x^2 - 25y^2$ is equivalent to

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

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

2) $(4x-5y)(4x-5y)$

3) $(8x-5y)(8x+5y)$

4) $(8x-5y)(8x-5y)$

30. If Ann correctly factors an expression that is the difference of two perfect squares, her factors could be

D.O.T.S

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

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

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

4) $(2y-5)(y-5)$

V . Write the product of the following:

31. $(y-5)(y+5)$ $y^2-5y+5y-25$ y^2-25	32. $(x+4)(x+3)$ $x^2+3x+4x+12$ $x^2+7x+12$
33. $(x-3)(x+2)$ $x^2+2x-3x-6$ $1x^2-x-6$	34. $(2x-3)(x+1)$ $2x^2+2x-3x-3$ $2x^2-x-3$

Identify the steps for factoring using the Easy Tri Method:

1.) a set of parenthesis

2.) Determine the signs

If the last sign is a (+), then the signs are the same

If last sign is a (-) , then the signs are different

3.) Determine the Factors

If the last sign is a (+), then the factors you choose will be equal to the sum of the numerical coefficient of the middle term.

If the last sign is a (-) then the factors you choose will be equal to the difference of the numerical coefficient of the middle term.

4.) check by double distribute

35. $x^2+8x+15$ $(x+3)(x+5)$ 15 1 15 35 -8	36. $x^2+13x+40$ $(x+5)(x+8)$ 40 1 40 2 20 4 10 5 8

37. $x^2-10x+24$

$(x-4)(x-6)$

24
1 24
2 12
3 8
4 6

38. $x^2-15x+36$

$(x-3)(x-12)$

36
1 36
2 18
3 12
4 9
6 6

39. $x^2+3x-28$

$(x+7)(x-4)$

28
1 28
2 14
4 7

40. x^2-x-6

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

6
1 6
2 3

41. What are the factors of $x^2-10x-24$?

$(x-12)(x+2)$

$x^2+2x-12x-24$

$x^2-10x-24$

24
1 24
2 12
3 8
4 6

1) $(x-4)(x+6)$
2) $(x-4)(x-6)$
3) $(x-12)(x+2)$
4) $(x+12)(x-2)$

42. What are the factors of x^2-5x+6?

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

$x^2-3x-2x-6$

x^2-5x-6

6
1 6
2 3

1) $(x+2)$ and $(x+3)$
2) $(x-2)$ and $(x-3)$
3) $(x+6)$ and $(x-1)$
4) $(x-6)$ and $(x+1)$

43. What are the factors of the expression x^2+x-20?

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

$x^2-4x+5x-20$

x^2+x-20

1) $(x+5)$ and $(x+4)$
2) $(x+5)$ and $(x-4)$
3) $(x-5)$ and $(x+4)$
4) $(x-5)$ and $(x-4)$

44. What is a common factor of x^2-9 and x^2-5x+6?

$x^2-9=(x-3)(x+3)$

$x^2-5x+6=(x-3)(x-2)$

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

Identify the steps for factoring using the Hard Tri Method:

1) Drop the 1st & last term
2) multiply the 1st & last term
3) Determine the factors & Signs
4) Divide the G.C.F out on both binomials
5) keep the same binomials
6) Put the G.C.Fs in the 2nd parenthesis
7) check by foiling

45. $6x^2+11x-10$

60
14, 15

$\frac{10x^2}{3x} + \frac{15x}{3x} \mid \frac{-4x}{-2} - \frac{10}{-2}$

$3x(2x+5) \quad -2(2x+5)$ same

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

46. $2x^2-x-3$

6
2, 3

$\frac{2x^2}{2x} + \frac{2x}{2x} \mid \frac{-3x}{-3} - \frac{3}{-3}$

$2x(x+1) \quad -3(x+1)$ same

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

47. $4x^2 - 21x - 25$

100 → 4 25

$4x^2 + 4x \mid -25x - 25$

$\frac{4x}{4x} \quad \frac{4x}{4x} \mid \frac{-25x}{-25} \quad \frac{-25}{-25}$

$4x(x+1) \quad -25(x+1)$ same

$(4x-25)(x+1)$

48. $3x^2 - 4x - 4$

12 → 2 6

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

$\frac{3x^2}{3x} \quad \frac{-6x}{3x} \mid \frac{+2x}{2} \quad \frac{-4}{2}$

$3x(x-2) \quad 2(x-2)$ same

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

WHEN FACTORING YOU **ALWAYS** LOOK FOR G.C.F

49. $2x^2 - 72y^2$

$\frac{2}{2} \quad \frac{2}{2}$ G.C.F

$2(x^2 - 36y^2)$ DOTS

$2(x-6y)(x+6y)$

50. $2x^2 - 8x - 10$

$\frac{2}{2} \quad \frac{2}{2} \quad \frac{2}{2}$ G.C.F

$2(x^2 - 4x - 5)$ Easy -5 +1

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

51. $5x^2 - 20$

$\frac{5}{5} \quad \frac{5}{5}$ G.C.F

$5(x^2 - 4)$ DOTS

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

52. $3x^3 - 75x$

$\frac{3}{3} \quad \frac{3}{3}$ G.C.F

$3(x^2 - 25)$ DOTS

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

53. $6x^2 - 6x^4$

$6x^2\ 6x^2$

$6x^2(1-x^2)$

$\boxed{6x^2(1-x)(1-x)}$

54. $x - 25x^3$

$x\ x$ G.C.F

$x(1-25x^2)$ DOPS

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

55. $5x^2 + 15x + 10$

$5\ 5\ 5$ G.C.F

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

$\boxed{5(x+1)(x+2)}$

56. $ax^2 - 18ax + 77a$

$a\ a\ a$ G.C.F

$a(x^2-18x+77)$ Easy

$\boxed{a(x-7)(x-11)}$

57. Factored completely, the expression $2y^2 + 12y - 54$ is equivalent to

$2\ 2\ 2$

1) $2(y+9)(y-3)$

2) $2(y-3)(y-9)$

3) $(y+6)(2y-9)$

4) $(2y+6)(y-9)$

$2(y^2+6y-27)$

$2(y+9)(y-3)$

58. Factored completely, the expression $2x^2 + 10x - 12$ is equivalent to

$2\ 2\ 2$

1) $2(x-6)(x+1)$

2) $2(x+6)(x-1)$

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

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

$2(x^2+5x-6)$

$2(x+6)(x-1)$

59. Which expression represents $36x^2 - 100y^6$ factored completely?

$4\ 4$

1) $2(9x+25y^3)(9x-25y^3)$

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

3) $(6x+10y^3)(6x-10y^3)$

4) $(18x+50y^3)(18x-50y^3)$

$4(9x^2-25y^6)$

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

60. Written in simplest factored form, the binomial $2x^2 - 50$ can be expressed as

1) $2(x-5)(x-5)$

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

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

4) $2x(x-50)$

$\frac{2x^2}{2} - \frac{50}{2}$

$2(x^2-25)$

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