Name Key Date _____ Pd ____

Bridge to Algebra 2 **Factoring DAY TWO WS**

1 – 8: Factor the polynomial by grouping. Show all work to earn full credit. Check by FOILing.

1. $b^3 - 4b^2 + b - 4$

$b^2(b-4)+1(b-4)$

$(b^2+1)(b-4)$

2. $ac + ad + bc + bd$

$a(c+d)+b(c+d)$

$(a+b)(c+d)$

3. $d^2 + 2c + cd + 2d$

$(d^2+cd)+(2c+2d)$

$d(d+c)+2(c+d)$

$(d+2)(d+c)$

OR $(2+d)(c+d)$

4. $5t^3 + 6t^2 + 5t + 6$

$t^2(5t+6)+1(5t+6)$

$(t^2+1)(5t+6)$

5. $8s^3 + s - 64s^2 - 8$

$(8s^3-64s^2)+(s-8)$

$8s^2(s-8)+1(s-8)$

$(8s^2+1)(s-8)$

6. $12a^3 + 2a^2 - 30a - 5$

$2a^2(6a+1)-5(6a+1)$

$(2a^2-5)(6a+1)$

7. $4x^3 - 12x^2 - 5x + 15$

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

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

8. $21h^3 + 18h^2 - 35h - 30$

$3h^2(7h+6)-5(7h+6)$

$(3h^2-5)(7h+6)$

9 – 16: Factor the polynomial completely. Show all work for full credit. Check by FOILing. GCF FIRST!

9. $4c^3 - 4c$

$4c(c^2-1)$

$4c(c^2+0c-1)$

$4c(c+1)(c-1)$

-1, -1, 1, 0

10. $100x^4 - 25x^2$

$25x^2(4x^2-1)$

$25x^2(4x^2+0x-1)$

$25x^2(4x^2+2x-2x-1)$

$25x^2[2x(2x+1)-1(2x+1)]$

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

-4, 2, -2, 0

11. $2a^2 + 3a - 2$

$2a^2+4a-a-2$

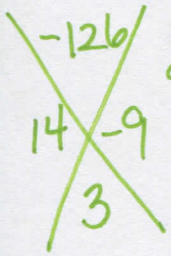
$2a(a+2)-1(a+2)$

$(2a-1)(a+2)$

-4, 4, -1, 3

GCF First!

12. $9x^2 + 5x - 14$

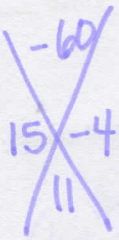


$9x^2 - 9x + 14x - 14$

$9x(x-1) + 14(x-1)$

$(9x+14)(x-1)$

13. $20p^2 + 22p - 12$



$2(10p^2 + 11p - 6)$

$2(10p^2 + 15p - 4p - 6)$

$2[5p(2p+3) - 2(2p+3)]$

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

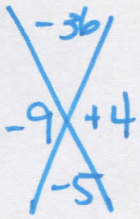
14. $12x^2 - 20x - 48$

$4(3x^2 - 5x - 12)$

$4(3x^2 - 9x + 4x - 12)$

$4[3x(x-3) + 4(x-3)]$

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



15. $(3s^3 + 2s^2 - 21s - 14)$

$s^2(3s+2) - 7(3s+2)$

$(s^2-7)(3s+2)$

16. $(2t^4 + t^3 - 10t - 5)$

$t^3(2t+1) - 5(2t+1)$

$(t^3-5)(2t+1)$

17 – 22: Solve the equation. Show all work for full credit. Plug your answer into the original to check.

17. $3x^2 - 21x + 30 = 0$

$\frac{3}{3}$

$x^2 - 7x + 10 = 0$

$(x-5)(x-2) = 0$

$x-5=0$ $x-2=0$

$x=5$ $x=2$

18. $5y^2 - 5y - 30 = 0$

$\frac{5}{5}$

$y^2 - y - 6 = 0$

$(y-3)(y+2) = 0$

$y-3=0$ $y+2=0$

$y=3$ $y=-2$

19. $c^4 - 81c^2 = 0$

$c^2(c^2-81) = 0$

$c^2(c^2+0c-81) = 0$

$c^2(c+9)(c-9) = 0$

$c^2=0$ $c+9=0$ $c-9=0$

$c=0$ $c=-9$ $c=9$

20. $9d + 9 = d^3 + d^2$

$0 = (d^3 + d^2) - (9d - 9)$

$0 = d^2(d+1) - 9(d+1)$

$0 = (d^2-9)(d+1)$

$0 = (d+3)(d-3)(d+1)$

$d+3=0$ $d-3=0$ $d+1=0$

$d=-3$ $d=3$ $d=-1$

21. $48n - 3n^2 = 0$

$\frac{-3}{-3}$

$-16n + n^2 = 0$

$n(n-16) = 0$

$n=0$ $n-16=0$

$n=16$

22. $x^3 + 3x^2 = 16x + 48$

$(x^3 + 3x^2) - 16x - 48 = 0$

$x^2(x+3) - 16(x+3) = 0$

$(x^2-16)(x+3) = 0$

$(x^2+0x-16)(x+3) = 0$

$(x+4)(x-4)(x+3) = 0$

$x+4=0$ $x-4=0$ $x+3=0$

$x=-4$ $x=4$ $x=-3$