Do Now: #s 1,3 and 5

Name: _____ Date: _____

PreCalculus Honors – Factoring Practice Sheet

Factor each expression completely.

1. $3x^2 - 5xy - 2y^2$

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

3. $125x^3 - 64y^9$

$(5x - 4y^3)(25x^2 + 20xy^3 + 16y^6)$

5. $(2x + y)x^2 - (2x + y)y^2$

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

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

Classwork

7. $16u^4 - 200u^2 + 625$

$(4u^2 - 25)^2$

$(2u - 5)^2 (2u + 5)^2$

10. $6c^{2x} + 8c^{x} - 64$ could $y = c^x$

$2(3c^{2x} + 4c^{x} - 32)$ $2(3y^2 + 4y - 32)$

$2(3c^{x} - 8)(c^{x} + 4)$

13. $x^{-\frac{1}{2}} - 2x^{\frac{1}{2}} + x^{\frac{3}{2}}$

$\frac{x^{-\frac{1}{2}}}{x^{-\frac{1}{2}}} = 1$ $\frac{x^{\frac{3}{2}}}{x^{-\frac{1}{2}}} = x^2$

$\frac{-2x^{\frac{1}{2}}}{x^{-\frac{1}{2}}} = -2x^1$

$x^{-\frac{1}{2}}(1 - 2x + x^2)$

$x^{-\frac{1}{2}}(x^2 - 2x + 1)$

$x^{-\frac{1}{2}}(x - 1)^2$

common mistake

$x^{-\frac{1}{2}}(-2x + x^2)$

need to write the one

Homework 09-07

Name: _____ Date: _____
PCH: More Factoring Fun Ms. Loughran

Factor each of the following completely.

1. $x^3 - 5x^2 - x + 5$

2. $x^4 - 2x^2 - 15$

3. $x^6 - 26x^3 - 27$

4. $x^6 + 2x^4 - 16x^2 - 32$

5. $x^4 - 13x^2 + 40$

6. $x^9 - x^6 - x^3 + 1$

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

$(x^3 - 2x)(x^3 + 2x)$ OR $x^2(x^4 - 4)$

$x(x^2 - 2) \cdot x(x^2 + 2)$ $x^2(x^2 - 2)(x^2 + 2)$

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

8. $2x^2 - 13x + 20$

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

9. $4x^2 + 4x - 15$

10. $-64x^3 + 125$

$-(64x^3 - 125)$ or $125 - 64x^3$

$-(4x - 5)(16x^2 + 20x + 25)$ $(5 - 4x)(25 + 20x + 16x^2)$

11. $8x^4 + 10x^2 - 3$

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

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

12. $16x^2 - 24x + 9$

13. $4(a-b)^2 - 14(a-b) - 8$

14. $3(3x+2)^2 + 5(3x+2) - 2$

15. $2(a+2b)^2+(a+2b)-1$

let $y = a+2b$

$2y^2+y-1$

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

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

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

16. $(m^2+2m)^2-21(m^2+2m)-72$

let $y = m^2+2m$

$y^2-21y-72$

$(y-24)(y+3)$

$(m^2+2m-24)(m^2+2m+3)$

$(m+6)(m-4)(m^2+2m+3)$

17. $(x^2-8x)^2-29(x^2-8x)+180$

let $y = x^2-8x$

$y^2-29y+180$

$(y-20)(y-9)$

$(x^2-8x-20)(x^2-8x-9)$

$(x-10)(x+2)(x-9)(x+1)$

18. $(x+y)^2-8x-8y+7$

let $a = x+y$

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

a^2-8a+7

$(a-7)(a-1)$

$(x+y-7)(x+y-1)$

19. $4x^2-y^2+1+4x$

$4x^2+4x+1-y^2$

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

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

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

20. $9x^2-y^4-12x+4$

$9x^2-12x+4-y^4$

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

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

21. $4x^8 - 60x^4 + 225$

$(2x^4 - 15)^2$

22. $5(x^2+4)^4(2x)(x-2)^4 + (x^2+4)^5 4(x-2)^3$ GCF

$2(x-2)^3(x^2+4)^4\left[5x(x-2) + 2(x^2+4)\right]$

$5x^2 - 10x + 2x^2 + 8$

$2(x-2)^3(x^2+4)^4\left[7x^2 - 10x + 8\right]$

$ac = 56$, ~~$b = -10$~~