Do Now: #s 1, 2 and 14 from the sheet titled More Practice Factoring

Name:_____ Date:_____

PC: More Practice Factoring

On separate paper, factor each of the following completely. If the polynomial cannot be factored, write prime.

1. $a^2 - 121b^4$

$(a-11b^2)(a+11b^2)$

2. $8 - 27a^3$

$(2-3a)(4+6a+9a^2)$

14. $2(x^2-7)^2 - 3(x^2-7) - 2$

let $y = x^2 - 7$

$2y^2 - 3y - 2$

$2y^2 - 4y + y - 2$

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

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

$(2(x^2-7)+1)(x^2-7-2)$

$(2x^2 - 14 + 1)(x^2 - 9)$

$(2x^2 - 13)(x-3)(x+3)$

Wrapping up from Friday…

8. x^4+4x^2+4

$(x^2)^2+4x^2+4$

let $y=x^2$

y^2+4y+4

$(y+2)(y+2)$

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

OR "tweak" the AM method

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

9. x^4-x^2-12

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

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

10. x^4-2x^2+1

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

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

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

11. $(x+1)^2-4$

let $y=x+1$

y^2-4

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

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

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

12. $x^2(x-1)-2x(x-1)+(x-1)$

let $y = x-1$

$x^2y - 2xy + y$

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

$y(x-1)(x-1)$

$(x-1)(x-1)(x-1)$

$(x-1)^3$

13. $8x^2(x-1)+4x(x-1)+2(x-1)$

let $y = x-1$

$8x^2y + 4xy + 2y$

$2y(4x^2 + 2x + 1)$

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

since there are not 2 #s that multiply to 4 and add to 2, we can't do splitting the middle, it is not factorable

Factoring Using Substitution Homework

Homework 09-08

① let $x = 2a+1$

$x^2 - 6x + 8$

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

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

$(2a-3)(2a-1)$

② let $x = m^2 - 1$

$x^2 + x - 12$

~~$(x^2+4$~~

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

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

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

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

③ let $x = a^2+3a$

$x^2 + 4x + 4$

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

$(a^2+3a+2)(a^2+3a+2)$

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

$(a+1)^2(a+2)^2$

④ let $y = 2x+3$

$y^2 + 8y + 12$

$(y+6)(y+2)$

$(2x+3+6)(2x+3+2)$

$(2x+9)(2x+5)$

⑤ let $a = x+y$

$3a^2 - 5a - 2$ $ac=-6$ $b=-5$

$3a^2 - 6a + a - 2$

$3a(a-2) + 1(a-2)$

$(3a+1)(a-2)$

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

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

⑥ let $x = a+2$

$2x^2 + 5x - 12$ $ac=-24$ $b=5$

$2x^2 + 8x - 3x - 12$

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

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

$(2(a+2)-3)(a+2+4)$

$(2a+4-3)(a+6)$

$(2a+1)(a+6)$

(7) let $y = x+3$

$3y^2 - 13y + 10$

$3y^2 - 10y - 3y + 10$

$y(3y-10) - 1(3y-10)$

$(y-1)(3y-10)$

$(x+3-1)(3(x+3)-10)$

$(x+2)(3x+9-10)$

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