Review: multiply the polynomials.

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

$(a+b)(a+b) = a^2 + 2ab + b^2$

$(a-b)(a-b) = a^2 - 2ab + b^2$

$(a+b)(a^2-ab+b^2) = a^3 + b^3$

$(a-b)(a^2+ab+b^2) = a^3 - b^3$

$a^3 + a^2b + ab^2 - a^2b - ab^2 - b^3$

HW Questions?

5.5

33. $xy + 4y - 2x - 8$

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

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

29. $a(x-2)-b(2-x)$

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

$a(x-2)-2b+xb$

$a(x-2)+xb-2b$

$+b(x-2)$

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

25. $y^{2n+2}+y^{n+2}-y^2$

$y^2(y^{2n}+y^n-1)$

y^2y^n

5.5

factoring trinomials of the form

$$ax^2+bx+c$$

when $a=1$, we look for factors of c that sum to b

when $a \neq 1$, we will look for factors of $c \cdot a$ that sum to b, rewrite bx as a sum of 2 terms, and factor by grouping

80. $6y^2+5y-6$

factors of $6(-6)=-36$ that sum to 5

$(-4)(9)$

$6y^2-4y+9y-6$

$2yx+3x$

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

$x(2y+3)$

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

88. $4a^2-a-5$

factors of $4(-5)$ that sum to -1

$4a^2+4a-5a-5$

$4a(a+1)-5(a+1)$

$(a+1)(4a-5)$

100. $6x^2+41xy-7y^2$

$6(-7)=-42=42(-1)$

$6x^2+42xy-xy-7y^2$

$6x(x+7y)-y(x+7y)$

$(x+7y)(6x-y)$

106. $6-7x-5x^2 = -1(5x^2+7x-6)$

$6(-5) = -30 = (-10)\cdot 3 = -1(5x-3)(x+2)$

$6-10x+3x-5x^2$

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

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

114. $8a^4+37a^3b-15a^2b^2$

$8(-15) = -2\cdot 2\cdot 2\cdot 3\cdot 5 = (2\cdot 2\cdot 2\cdot 5)(-3)$

$= -120$ $12\cdot 10$

$= 10(-12)$ $16\cdot 20$

$= 40(-3)$ $27\cdot 5$

$= 60(-2)$ $40\cdot 3$

$8a^4+40a^3b-3a^3b-15a^2b^2$

$8a^3(a+5b)-3a^2b(a+5b)$

$(a+5b)(8a^3-3a^2b)$

$(a+5b)(8a-3b)\cdot a^2$

$a^2(a+5b)(8a-3b)$

122. $2a^2b^4 + 9ab^3 - 18b^2$

$b^2(2a^2b^2 + 9ab - 18)$

$2(-18) = -36 = (12)(-3)$

$b^2(2a^2b^2 + 12ab - 3ab - 18)$

$b^2[2ab(ab+6) - 3(ab+6)]$

$b^2(ab+6)(2ab-3)$

136. $x^{3n} + 10x^{2n} + 16x^n$

$x^n(x^{2n} + 10x^n + 16)$

$x^n(x^n + 8)(x^n + 2)$

$x^n(x^{2n} + 8x^n + 2x^n + 16$

$x^n(x^n(x^n+8) + 2(x^n+8))$

$x^n(x^n+8)(x^n+2)$

$x^n(x^n+8)(x^n+2)$

96. $10x^2 - 29x + 10$

$10(10) = 100 = (-25)(-4)$

$10x^2 - 25x - 4x + 10$

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

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

98. $4x^2 - 6x + 1$

$4(1) = 4$

$-4(-1)$

$(-2)(-2)$

$2 \cdot 2$

not factorable!

5.5

#79-137 odd