A.3 Polynomials and Factoring

Quick Review of adding, subtracting, and multiplying polynomials.

$(5x^3 - 7x^2 - 3) + (x^3 + 2x^2 - x + 8)$

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

$(7x^4 - x^2 - 4x + 2) + (3x^4 + 4x^2 + 3x)$

$4x^4 + 3x^2 - 7x + 2$

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

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

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

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

$9x^2 - 4$

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

$x^2 + xy + 2x$
$+xy \quad + y^2 + 2y$
$-2x \quad -2y \quad -4$

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

Factoring: GCF

$6x^3 - 4x$

$9x^2 - 4$
$(\quad x \quad)$

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

$2x(\sqrt{3}x + \sqrt{2})(\sqrt{3}x - \sqrt{2})$ *

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

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

$-4x^2 + 12x - 16$

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

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

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

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

Difference of Squares

$100 - 4y^2$

$4(25 - y^2)$

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

$-4(-25+y^2)$

$-4(y^2-25)$

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

$16x^4 - 81$

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

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

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

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

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

$(x-1)^2 - 9y^4$

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

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

Sum/Difference of Cubes

$x^3 - 27$

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

$64x^3 - 1$

$(4x-1)(16x^2+4x+1)$

$y^3 + 8$

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

$3x^3 + 192$

$3(x^3+64)$

$3(x+4)(x^2-4x+16)$

Factoring by grouping.

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

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

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

$(x-2)(x+\sqrt{3})(x-\sqrt{3})$

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

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

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

$(x+1)(x+\sqrt{5})(x-\sqrt{5})$

Section A.3 Polynomials and Factoring

Pages A33 & A34 (back of book)

13, 15, 17, 25, 29, 35, 37-44, 47, 51-54, 58, 62, 64, 66, 68, 73-82