Factoring

1. Factor fully using the rational root theorem, or one of the special factoring techniques discussed in class.

a) $x^3 - 4x^2 + x + 6$

b) $2x^3 + x^2 - 13x + 6$

c) $x^3 + x^2 - 16x + 20$

d) $(x-5)(3x^3 - x^2 - 20x - 12)$

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

f) $x^3 - 64$

g) $5a^4 - 135a$

h) $x^3 - 5x^2 - 9x + 45$

i) $x^4 - 13x^2 + 36$

j) $x^4 + 8x^3 - 2x^2 - 16x$

k) $4x^3 - 8x^2 - 25x + 50$

l) $36x^2 - x^4 - 100$

m) $x^4 - x^3 - x + 1$

n) $x^5 - 2x^4 - x^3 + 2x^2 - 12x + 24$

Factoring Review

Need to brush up on your factoring?!?!

2. You already know three factoring methods. They are: a) common factoring, b) difference of squares factoring and c) trinomial factoring. Use which ever method is appropriate to completely factor the following polynomial expressions.

a) $x^2 - 9x + 18$

b) $x^2 - 64$

c) $15x^3d - 10x^2d - 25xd$

d) $3x^2 - 33x + 72$

e) $2x^2 - 11x + 5$

f) $36x^2 - 121$

g) $16x^2 - 25y^2$

h) $50x^3 - 72xy^2$

i) $12x^2 - 17x + 6$

j) $9x^2 + 6x - 8$

k) $x^4 - 81$

l) $6x^2 + xy - 12y^2$

3. Factor the following using Factor by grouping.

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

b) $2ax - bx + 2ay - by$

c) $3x^5 - x^4 - 9x + 3$

d) $c^2 - ck - cx + kx$

e) $m^2 - m + mn - n$

f) $x^3 + 7x^2 - 5x - 35$

g) $ax + by + bx + ay$

h) $4mx + 2ny - 8my - nx$

i) $x^2y - y^2 - x^3 + xy$

j) $mx + 2y + my + 2x$

k) $10x^2 + 3y - 5xy - 6x$

l) $a^2b^2 - 7ba^2 + 13a^2 - 4b^2 + 28b - 52$

m) $ax - 3a + 3b - bx$

n) $3ab - 20cd - 15ac + 4bd$

o) $ax^2 - bx^2 + ax - bx + a - b$

4. Grouping of terms is also used to create differences of squares.

a) $c^2 + 6c + 9 - d^2$

b) $a^2 + 4a + 4 - 9x^2$

c) $b^2 - a^2 + 2ac - c^2$

d) $k^2 - y^2 - 2y - 1$

e) $b^2 - 2ab + a^2 - 1$

f) $x^2 - 9y^2 + 6y - 1$