Section S.S: Factoring Polynomials

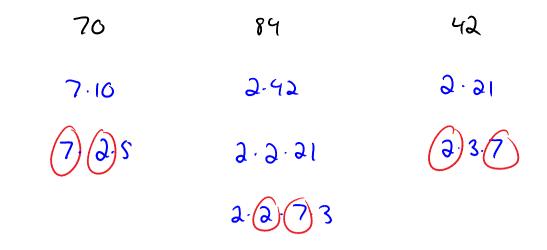
Tuesday, October 29, 2013 9:57 AM

to "factor a polynomial" means to rewrite it es  
the product of polynomials  
example: 
$$2x + 6 = 2(x + 3)$$
  
T factored  
not  
factored

factoring at the greatest common factor (GCF):  

$$3x^{2}y - 6xy^{2} = 3xy(x - 2y)$$
  
 $60a^{3}b^{5} + 140a^{3}b^{2} - 4a^{3}b^{6}$   
 $= 4a^{2}b^{2}(15b^{3} + 35a^{7} - ab^{7})$   
 $70x^{2} - 87x + 42x^{3} = 2x(35x - 42 + 21x^{2})$   
 $= 14x(5x - 6 + 3x^{2})$   
 $= 14x(3x^{2} + 5x - 6)$ 

a different way to find the GCF coefficient:



Lactoring at a binomial:  

$$3(y-4) + b(y-4)$$
  
 $(y-4)(3+b) = (3+b)(y-4)$   
 $3(y-4) + b(4-y)$   
 $3(y-4) - b(-4+y)$   
 $3(y-4) - b(-4+y)$   
 $3(y-4) - b(-4+y)$   
 $(3-b)(y-4) = (b-3)(4-y)$ 

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

factoring by gravping: Efor polynomials with four terms

 $\partial a + \partial b + wa + wb$  $\partial (a+b) + w(a+b)$  $(\partial + w)(a+b)$ 

$$pr + 2a - 2r - ap$$

$$pr - ar + 2a - ap$$

$$pr - ar + 2a - ap$$

$$pr - ar + 2a - 2r$$

$$p(r - ar + 2a - 2r$$

$$r(p - 2) + a(2 - p)$$

$$p(r - a) + 2(a - r)$$

$$p(r - a) - 2(r - a)$$

$$(r - a)(p - 2)$$

$$(p - 2)(r - a)$$