

# Introduction to Factoring Polynomials

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**Factoring** is simply the distributive property in reverse.

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Example 1:

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a.) Apply the distributive property to  $4(x + 2)$ .  
 $= 4x + 8$

b.) Factor:  $4x + 8$

First we ask what the greatest common factor (GCF) is, then we factor out the GCF.

Between  $4x$  and  $8$ , the GCF is  $4$ , since  $4$  is the largest value that divides evenly into both terms. So we factor out the  $4$ .

$4( \quad + \quad )$

We ask,  $4$  times what gives us  $4x$ ?  $4$  times what gives us  $8$ ?

Example 2:

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Factor completely:

a.)  $7x + 14$

b.)  $9a^2 + 6a$

c.)  $3x^2y - 12xy^2$

d.)  $8x^2yz^4 + 12x^3y^2z^3 - 16x^2yz^2$

Factor Completely:

1.  $4x - 6$

2.  $9x^2 + 12x$

3.  $8ab - 4ab^2$

4.  $12x^2y - 48xy^2 + 144x^2y^2$

5.  $a^2b + ab^2 - a^2b^2$

6.  $x^3y^2z - x^2y^3z^3 + x^5yz^4$