

Name:

Date:

Period:

# Lesson 1.6 Factoring Notes

## Factoring Trinomials

of the form  $ax^2 + bx + c$

$a=1$

factor

To factor a trinomial of the form  $x^2 + bx + c$ , you must find two integers that

the product is  $c$  and the sum is  $b$

Ex1:  $x^2 + 7x + 12$

What two integers have a product of  $12$  and a sum of  $7$ ?

Write two binomials using these integers, then FOIL to check.

$(x+3)(x+4)$   
 $x \cdot x + 4 \cdot x + 3x + 12$   
 $x^2 + 7x + 12$  multiply

product	sum
12	
1 12	13
2 6	8
3 4	7

## Practice

Directions: Factor each trinomial.

Ex2:  $K^2 + 13K + 12$   
 $(K+6)(K+7)$   
factors 12  
sum 13

Ex3:  $x^2 - 7x + 12$   
 $(x-3)(x-4)$   
both + or both -  
sum = -7

Ex4:  $a^2 + 6a - 16$   
 $(a+8)(a-2)$   
one factor is neg  
sum is pos

Ex5:  $n^2 - n - 30$   
 $(n-6)(n+5)$

## Examples with a GCF

Not all polynomials have a GCF other than 1.

Directions: Look for a GCF first, then factor the remaining trinomial.

Ex6:  $4k^2 + 12k + 8$   
GCF 4  
 $4(k^2 + 3k + 2)$   
 $4(k+2)(k+1)$

Ex7:  $2x^2 - 8x - 24$   
 $2(x^2 - 4x - 12)$   
 $2(x-6)(x+2)$

Ex8:  $3y^2 - 15y + 12$

Ex9:  $3a^2 + 30a + 63a$

You may only be able to factor out a GCF.

When "a" is not 1, we will factor using the **BOX METHOD**

Factoring  
Trinomials  
of the form  
 $ax^2 + bx + c$

ExI0:

ExII:

Practice