

Name: _____

Date: _____

8.08 Integrated Algebra
Factoring Trinomials Completely

- Always check for a *GCF* FIRST!!
- You want to get the coefficient of x^2 to be 1.
- Completely Factor = 2 Words = 2 Steps

Exercise #1: Consider the trinomial $\frac{3x^2}{3} + \frac{15x}{3} + \frac{18}{3}$

(a) Factor out the *GCF*.

$$3(x^2 + 5x + 6)$$

(b) Factor the remaining trinomial in the parentheses. Remember to bring the *GCF* with you!

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

Exercise #2: Factor each of the following trinomials completely. Remember to mentally check your factors by multiplying.

(a) $2y^2 - 12y + 16$

same
 $2(y^2 - 6y + 8)$
 $2(y-2)(y-4)$

(b) $x^3 - 4x^2 - 12x$

opp.
 $x(x^2 - 4x - 12)$
 sub.
 $x(x+2)(x-6)$

(c) $5x^2 - 45x + 90$

same
 $5(x^2 - 9x + 18)$
 $5(x-6)(x-3)$

(d) $9x^2 + 18x + 9$

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

1, 18
 2, 9
 3, 6

(e) $2x^2 + 2xy - 112y^2$

sub
 diff
 $2(x^2 + xy - 56y^2)$

(f) $6n^2 + 18mn - 60m^2$

sub
 opp.
 $6(n^2 + 3mn - 10m^2)$

56, 1
 28, 2
 14, 4
 8, 7

$$2(x+8y)(x-7y)$$

$$6(n+5m)(n-2m)$$