INSTRUCTOR GUIDANCE EXAMPLE: Week Five Discussion

Factoring

Since there are several different types of factoring problems assigned from pages 345-346, four types will be demonstrated here to offer a selection, even though individual students will only be working two from these pages.

#73. $x^3 - 2x^2 - 9x + 18$	Four terms means start with **grouping**
$x^2(x - 2) - 9(x - 2)$	The common **factor** for each group is $(x - 2)$
$(x - 2)(x^2 - 9)$	Notice the difference of squares in second group
$(x - 2)(x - 3)(x -+ 3)$	Now it is completely factored.

#81. $6w^2 - 12w - 18$	Every term has a **GCF** of 6
$6(w^2 - 2w - 3)$	Common **factor** is removed, now have a trinomial
	Need two numbers that add to -2 but multiply to -3
	Try with -3 and +1
$6(w - 3)(w + 1)$	This works, check by multiplying it back together

#97. $8vw^2 + 32vw + 32v$	Every term has a **GCF** of 8v
$8v(w^2 + 4w + 4)$	The trinomial is in the form of a **perfect square**
$8v(w + 2)(w + 2)$	Showing the squared binomial
$8v(w + 2)^2$	Writing the square appropriately

#103. $-3y^3 + 6y^2 - 3y$	Every term has a **GCF** of -3y
$-3y(y^2 - 2y + 1)$	Another **perfect square** trinomial
$-3y(y - 1)(y - 1)$	Showing the squared binomial
$-3y(y - 1)^2$	Writing the square appropriately

Here are two examples of problems similar to those assigned from page 353.

$5b^2 - 13b + 6$	a = 5 and c = 6, so ac = 5(6) = 30. The **factor** pairs of 30 are 1, 30 2, 15 3, 10 5,6
	-3(-10)=30 while -3+(-10)= -13 so replace -13b by -3b and -10b
$5b^2 - 3b - 10b + 6$	Now **factor** by **grouping.**
$b(5b - 3) - 2(5b - 3)$	The common binomial **factor** is $(5b - 3)$.
$(5b - 3)(b - 2)$	Check by multiplying it back together.

$3x^2 + x - 14$	a = 3 and c = -14, so ac =3(-14)= -42. The **factor** pairs of – 42 are
	1, -42 -1, 42 3, -14 -3, 14
	2, -21 -2, 21 6, -7 -6, 7
	We see that -6(7) = -42 while -6 + 7 = 1 so replace x with -6x + 7x.
$3x^2 - 6x + 7x - 14$	**Factor** by **grouping.**
$3x(x - 2) + 7(x - 2)$	The common binomial factor is $(x - 2)$.
$(x - 2)(3x + 7)$	Check by multiplying it back together.