Math 1030, Homework Activity #13, Summer 2014   Name ___**KEY**___
Sections 6.5

Instructions: Complete the following problems. You may work alone or in a group. Do not just copy answers from a group member, but be sure that you understand the problem. Similar questions will appear on exams. You may be asked to explain or present the answers to the class. This assignment is due at the end of the class period.

1. Factor each problem below completely. Each factor should not be able to be factored further. Indicate which factoring techniques you used: GCF, formula (difference of squares, sum/difference of cubes, perfect square trinomial), grouping, trial and error, etc. Include all methods used if you used multiple methods.

a. $x^2 - 100$ $(x-10)(x+10)$

b. $t^2 + t - 6$ $(t+3)(t-2)$

c. $a^3 - 8$ $(a-2)(a^2 + 2a + 4)$

d. $2x^2 - 5x - 7$ $(2x-7)(x+1)$

e. $2m^2 + 7m + 4$ $prime$

f. $xy - ay - bx + ab$ $y(x-a) - b(x-a) = (x-a)(y-b)$

g. $36a^4 - 49b^2$ $(6a^2 - 7b)(6a^2 + 7b)$

h. $w^2 + 6w + 8$ $(w+4)(w+2)$

i. $27m^3 + 64n^6$ $(3m + 4n^2)(9m^2 - 12mn^2 + 16n^4)$

j. $12z^2 - 3$ $3(4z^2 - 1) = 3(2z+1)(2z-1)$

k. $2j^6 - 2j^2$ $2j^2(j^4 - 1) = 2j^2(j^2-1)(j^2+1) = 2j^2(j-1)(j+1)(j^2+1)$

l. $4n^2 - n^4 + 3n^3$ $-n^2(n^2 - 3n - 4) = -n^2(n-4)(n+1)$

m. $-32x^3 + 72xy^2$ $-8x(4x^2 - 9y^2) = -8x(2x-3y)(2x+3y)$

n. $2n^3 - 10n^2 - 6n + 30$ $2n^2(n-5) - 6(n-5) = (2n^2 - 6)(n-5)$

o. $x^2 - x + 6$ $prime$

p. $(3r-1)^2 - 9(3r-1) + 20$ $u^2 - 9u + 20$ $(u-5)(u-4) = (3r-1-5)(3r-1-4)$
$= (3r-6)(3r-5)$
$= 3(r-2)(3r-5)$

q. $3(z^2+3)^2 + 14(z^2+3) + 8$ $3u^2 + 14u + 8$
$(3u+2)(u+4) = (3z^2 + 9 + 2)(z^2 + 3 + 4)$
$= (3z^2 + 11)(z^2 + 7)$