King Fahd University of Petroleum and Minerals
University Diploma Programs
Math 001 (041)
Quiz # 2

Instructor: Al-Absi, Bassam *Oct. 10, 2004*

Name : **Sample Key Solution** *ID:……* *Sec:….*

Important Directions: **(1) Call up your Challenge Spirit. (2) Be very well organized (3) Show All the needed steps. (4) Watch the time. Five minutes for each problem**

1) Consider the expression $(2x-2)^3-3x(-x+1)^2$

(a) Perform the above operations and put the **answer in standard form**.

Sol:

$$(2x-2)^3-3x(-x+1)^2$$
$$=\left[(2x)^3-3(2x)^2.2+3(2x).2^2-2^3\right]-3x(x^2-2x+1)$$
$$=8x^3-24x^2+24x-8-3x^3+6x^2-3x$$
$$=5x^3-18x^2+21x-8$$

(b) Fill in the following blanks **concerning the above expression** in part (a)

i) The coefficient of x^2 is ……-18……

ii) The leading coefficient is ……5……..

iii) The constant term is -8…….

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2) Factor each of the following expressions completely**:**

(a)

$$10x^3y-15xy^3+25x^2y^2$$
$$=5xy(2x^2-3y^2+5xy)$$
$$=5xy(2x^2+5xy-3y^2)$$
$$=5xy(2x-y)(x+3y)$$

(b)

$$4x^2-12xy+9y^2-2x+3y$$
$$=(4x^2-12xy+9y^2)+(-2x+3y)$$
$$=(2x-3y)(2x-3y)-(2x-3y)$$
$$=(2x-3y)(2x-3y-1)$$

(3) Simplify

$$\left[\frac{x^3-1}{x^2+x+1}-\frac{x^2-1}{x-1}\right]\div\frac{x-2}{-x^2+5x-6}=$$
$$\left[\frac{(x-1)(x^2+x+1)}{(x^2+x+1)}-\frac{(x-1)(x+1)}{x-1}\right]\bullet\frac{-(x-2)(x-3)}{x-2}$$
$$=[x-1-x-1]\bullet(3-x)=2x-6$$