King Fahd University of Petroleum and Minerals
Mathematical Sciences Department
Math 001
Quiz # 2
Term(032)

Instructor: Al-Absi, Bassam **March 17, 2004**

Student's Name:…… ID: ……SEC: …

1)

(a) Perform the product $(1-2x)^3-(x+1)^2$ and put the answer in standard form.

$$=1-3(1)^2(2x)+3(1)(2x)^2-(2x)^3-\left(x^2+2x+1\right)$$
$$=-8x^3+11x^2-8x$$

(b) Fill in the following blanks concerning the above polynomial..

i) The coefficient of x^2 is ……11

ii) The leading coefficient is ……-8…..

iii) The constant term is ……0…….

2) Simplify the following expression and the result in simplest form.

(a)

$$\frac{2}{2\sqrt{2}-3}+\frac{3}{\sqrt{8}}$$
$$=\frac{2}{2\sqrt{2}-3}\cdot\frac{2\sqrt{2}+3}{2\sqrt{2}+3}+\frac{3}{2\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}$$
$$=\frac{4\sqrt{2}+6}{8-9}+\frac{3\sqrt{2}}{4}=\frac{-13\sqrt{2}-24}{4}$$

(b)

$$\left(x^2-2xy+y^2\right)^{\frac{1}{2}}+\left(\left(x-y\right)^3\right)^{\frac{1}{3}},\ \text{if } x<y$$
$$=\sqrt{(x-y)^2}+\sqrt[3]{(x-y)^3}$$
$$=|x-y|+(x-y)$$
$$=-(x-y)+x-y=0$$

(c)

$$\sqrt[7]{64x^2\sqrt[4]{16x^{20}}}+\left(\frac{-1}{32}\right)^{-\frac{2}{5}}$$
$$=\sqrt[7]{2^6x^2\sqrt[4]{\left(2x^5\right)^4}}+\left(\sqrt[5]{\left(\frac{-1}{2}\right)^5}\right)^2$$
$$=\sqrt[7]{(2x)^7}+\left(-\frac{1}{2}\right)^2=2x+\frac{1}{4}=\frac{8x+1}{4}$$

(d)

$$\sqrt[3]{16a^3x}+\sqrt[3]{-54a^6x}$$
$$=\sqrt[3]{2x(2a)^3}+\sqrt[3]{2x\left(-3a^2\right)}$$
$$=2a\sqrt[3]{2x}-3a^2\sqrt[3]{2x}=\left(2a-3a^2\right)\sqrt[3]{2x}$$