King Fahd University of Petroleum and Minerals
Faculty of Science – Per-Year Math Program
Math 001 - Term 032
Recitation hour (P3 & P4)

Please cover at least four questions

Question1:

Simplify the expression $\left[\frac{-2^0(x^3y^{-1})^{-2}}{(27)^{-1}x^{-3}y^5}\right]^{-1/3}$, where x and y are nonzero real numbers.

$$\left[\frac{-27x^{-6}y^2}{x^{-3}y^5}\right]^{-1/3}=\left[\frac{-27}{x^3y^3}\right]^{-1/3}=\left[\frac{-x^3y^3}{27}\right]^{1/3}=-\frac{xy}{3}$$

Question2:

Evaluate each expression

1. $-3^{-2^2}=-3^{-4}=-\frac{1}{3^4}=-\frac{1}{81}$
2. $(-\frac{8}{27})^{2/3}=\left(\sqrt[3]{-\frac{8}{27}}\right)^2=\frac{4}{9}$
3. $\sqrt[3]{0.027}=.3$

Question3:

Simplify $5x\sqrt[3]{54x^4}-3\sqrt[3]{16x^7}$. Write the answer in the simplest form.

$$=5x\sqrt[3]{3^3\cdot 2\cdot x^3\cdot x}-3\sqrt[3]{2^3\cdot 2\cdot (x^2)^3\cdot x}=5x\cdot 3x\sqrt[3]{2x}-3\cdot 2x^2\sqrt[3]{2x}=15x^2\sqrt[3]{2x}-6x^2\sqrt[3]{2x}=9x^2\sqrt[3]{2x}$$

Question4:

Simplify each expression by rationalizing the denominator. Write the result in the simplest form.

1. $\dfrac{\sqrt{6}}{\sqrt{3}-\sqrt{2}} = \dfrac{\sqrt{3}+\sqrt{2}}{\sqrt{3}+\sqrt{2}} = \dfrac{\sqrt{18}+\sqrt{12}}{3-2} = \sqrt{18}+\sqrt{12}$

2. $\dfrac{2}{\sqrt[3]{4x}} = \dfrac{\sqrt[3]{2x^2}}{\sqrt[3]{2x^2}} = \dfrac{2\sqrt[3]{2x^2}}{2x} = \dfrac{\sqrt[3]{2x^2}}{x}$

Question5

TRUE or FALSE

1. If x is any real number, then $\sqrt[3]{-x^3} = -x$. T
2. If x and y is any real number, then $\sqrt[3]{xy}\,\sqrt[5]{xy^2} = \sqrt[8]{x^2y^3}$ .F
3. The scientific notation of the number 0.000030025 is 3.0025×10^5. F