King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (141)
Recitation R.7

Question1:

simplify the following:

$$(a)\frac{\left(3\sqrt{x^2-2}-2\sqrt{x^2+2}\right)\left(3\sqrt{x^2-2}+2\sqrt{x^2+2}\right)}{\left(x\sqrt{5}+\sqrt{26}\right)} \qquad (b)\sqrt{(x+y)^2-4xy}$$

Answer: (a): $x\sqrt{5}-\sqrt{26}$ **(b):** $|x-y|$

Question2:

Find the value of

$$(a)\frac{3}{\sqrt{5}-\sqrt{2}}-\frac{2}{3\sqrt{2}} \qquad (b)\ \frac{2}{\sqrt[3]{54}}+\frac{4}{\sqrt[3]{16}}-\frac{1}{\sqrt[3]{2}}$$

$$(c)\frac{1}{\left|2-\sqrt{5}\right|}+\frac{1}{\left|-2-\sqrt{5}\right|} \qquad (d)\frac{\sqrt[13]{(-2)^{13}}-\sqrt[10]{(-2)^{10}}}{\sqrt{2}-1}$$

Answer: (a): $\sqrt{5}+\frac{2\sqrt{2}}{3}$ **(b):** $\frac{5\sqrt[3]{4}}{6}$ **(c):** $2\sqrt{5}$ **(d):** $-4\left(\sqrt{2}+1\right)$

Question3:

let $x=7+3\sqrt{2}$ and $y=7-3\sqrt{2}$ then one of the following is an integer

$$(a)x^2 \qquad (b)y^2 \qquad (c)\frac{x}{y}$$

$$(d)\frac{y}{x} \qquad (e)x^2+y^2$$

Answer: (e): $x^2+y^2=67+42\sqrt{2}+67-42\sqrt{2}=134$ **is an integer**

Question4:

If a is any real number which of the following is TRUE

$$(a)\sqrt[4]{a^4}=|a| \qquad (b)\sqrt[4]{a^2}=\sqrt{a}$$

$$(c)\sqrt[3]{a^3}=|a| \qquad (d)\sqrt[7]{\sqrt[3]{a}}=a^{\frac{3}{7}}$$

$$(e)\sqrt[3]{a}\sqrt{a}=\sqrt[6]{a}$$

Answer: (a): TRUE (b): FALSE (c): FALSE (d): FALSE (e): FALSE