NAME: SOLUTIONS

QUIZ 2

201-943-DW (Applied Math)
Dawson College
Instructor: E. Richer
Date: Sept. 10th 2010

Question 1 (*30 marks*)

Fill in the blanks:

"Regular" Notation	Scientific Notation	Engineering Notation	Engineering with Metric Prefixes
123000	1.23×10^5	123×10^3	123k
0.000000003415	3.415×10^{-7}	341.5×10^{-9}	341.5 n
152000	1.52×10^5	152×10^3	152k
65700	6.57×10^4	65.7×10^3	65.7k
0.0000000224	2.24×10^{-8}	22.4×10^{-9}	22.4n
125100000000000	1.251×10^{14}	125.1×10^{12}	125.1T
12200000	1.22×10^7	12.2×10^6	12.2M
378000000000	3.78×10^{11}	378×10^9	378 G
35000000000	3.5×10^{10}	35×10^9	35G
0.000045	4.5×10^{-5}	450×10^{-6}	45μ

BONUS (LONG DIVISION)

$$
\begin{array}{r|l}
-x+1 & 4x^2+4x+3 \\
\hline
 & -4x^3+x-5 \\
 & -(-4x^3+4x^2) \\
\hline
 & -4x^2+x-5 \\
 & -(-4x^2+4x) \\
\hline
 & -3x-5 \\
 & -(-3x+3) \\
\hline
 & -8
\end{array}
$$

ANSWER: $4x^2+4x+3-\frac{8}{-x+1}$

$$
\begin{array}{r|l}
x^2+2 & 3x^2-2x-6 \\
\hline
 & 3x^4-2x^3+x \\
 & -(3x^4+6x^2) \\
\hline
 & -2x^3-6x^2+x \\
 & -(-2x^3-4x) \\
\hline
 & -6x^2+5x \\
 & -(-6x^2-12) \\
\hline
 & 5x+12
\end{array}
$$

ANSWER: $3x^2-2x-6+\frac{5x+12}{x^2+2}$

Question 2. *(2 marks each)*

Simplify the following expressions.

(a) $\sqrt{72}$

$= \sqrt{36 \cdot 2}$

$= \sqrt{36}\sqrt{2}$

$= \boxed{6\sqrt{2}}$

(b) $-\sqrt[3]{-27}$

$= -(-3)$

$= \boxed{3}$

(c) $9^{-\frac{1}{2}}$

$= \dfrac{1}{9^{1/2}}$

$= \dfrac{1}{\sqrt{9}} = \boxed{\dfrac{1}{3}}$

(d) $3\sqrt{162} - 5\sqrt{50} + 2\sqrt{8}$

$= 3\sqrt{81 \cdot 2} - 5\sqrt{25 \cdot 2} + 2\sqrt{4 \cdot 2}$

$= 3\sqrt{81}\sqrt{2} - 5\sqrt{25}\sqrt{2} + 2\sqrt{4}\sqrt{2}$

$= 3(9)\sqrt{2} - 5(5)\sqrt{2} + 2(2)\sqrt{2}$

$= 27\sqrt{2} - 25\sqrt{2} + 4\sqrt{2} = \boxed{6\sqrt{2}}$

(e) $(-125)^{\frac{2}{3}}$

$= \left(\sqrt[3]{-125}\right)^2$

$= (-5)^2 = \boxed{25}$