

POP QUIZ 1 - SOLUTIONS

LONG DIVISION

SEPT 9th 2011

943-DW

APPLIED MATH

INSTRUCTOR E. RICHER

$$(1) \frac{3x^4 - 2x^3 + x^2 - x + 2}{x+2}$$

$$\begin{array}{r}
 x+2 \overline{) 3x^4 - 2x^3 + x^2 - x + 2} \\
 \underline{-(3x^4 + 6x^3)} \\
 -8x^3 + x^2 \\
 \underline{-(-8x^3 - 16x^2)} \\
 17x^2 - x \\
 \underline{-(17x^2 + 34x)} \\
 -35x + 2 \\
 \underline{-(-35x - 70)} \\
 72
 \end{array}$$

ANSWER:

$$\frac{3x^4 - 2x^3 + x^2 - x + 2}{x+2} = \boxed{3x^3 - 8x^2 + 17x - 35 + \frac{72}{x+2}}$$

$$(2) \frac{x^3 + 1}{x-1} \quad x-1 \overline{) x^3 + 1} \\
 \underline{-(x^3 - x^2)} \\
 x^2 + 1 \\
 \underline{-(x^2 - x)} \\
 x + 1 \\
 \underline{-(x - 1)} \\
 2$$

$$\text{ANSWER} \quad \frac{x^3 + 1}{x-1} = \boxed{x^2 + x + 1 + \frac{2}{x-1}}$$