## $\begin{array}{c} \textbf{Project Based Math 112, Fall 2001} \\ \textbf{Activity } \# 6 \longrightarrow \textbf{Loki's Dilemma} \\ \text{(Loki was a god in Norse mythology, with a reputation of being a trickster.)} \end{array}$

1.	Compute $\int x^2 \sin(x^3) \cos(x^3) dx$ , using the substitution $u = \sin(x^3)$ . Check your answer by differentiating.
2.	Compute $\int x^2 \sin(x^3) \cos(x^3) dx$ , using the substitution $u = \cos(x^3)$ . Check your answer by differentiating.
3.	Notice that the integrals in questions 1 and 2 are the same. Did you get the same answer for each? Explain.