1. Find Taylor's Formula with remainder for the given $f(x)$, a, and n.

(a) $f(x) = \cos x$, $a = \dfrac{\pi}{4}$, $n = 4$

(b) $f(x) = \dfrac{1}{(x-3)^2}$, $a = 4$, $n = 5$

(c) $f(x) = e^{-x^2}$, $a = 0$, $n = 3$

2. If we used Problem 1a to approximate $\cos 47°$, what decimal place accuracy could we achieve?

3. (a) Use Problem 1b to approximate $\dfrac{1}{(.9)^2}$

(b) Use the Taylor remainder in Problem 1b to estimate the error in this approximation.

4. Determine the number of decimal places of accuracy that the given approximation formula yields for $|x| \leq 0.1$.

(a) $e^x \approx 1 + x + \dfrac{1}{2}x^2 + \dfrac{1}{6}x^3 + \dfrac{1}{24}x^4$

(b) $\sin x \approx x - \dfrac{1}{6}x^3 + \dfrac{1}{120}x^5$

(c) $\ln(1 + x) \approx x - \dfrac{1}{2}x^2 + \dfrac{1}{3}x^3 - \dfrac{1}{4}x^4$