

Math 112 Fall 2009
Taylor Polynomials Practice

Find the Taylor polynomials of degree 4 approximating the following functions for $x = 0$. Can you see a nice pattern so that you can write the Taylor polynomial of degree n near $x = 0$ using the sigma notation.

1. $f(x) = \sin(x)$

2. $f(x) = \frac{1}{1-x}$

3. $f(x) = \sqrt{1+x}$

4. $f(x) = \ln(x)$

5. $f(x) = \ln(1+x)$

6. $f(x) = \frac{1}{1+x}$

7. $f(x) = \cos(x)$

8. $f(x) = e^x$

Find the Taylor polynomial of degree n near $x = a$ for the following functions.

1. $f(x) = \sqrt{1-x}$, $a = 1$, $n = 4$

2. $f(x) = \ln(x^2)$, $a = 1$, $n = 3$