Math 112
Quiz #16

1. What is the Taylor series for $f(x) = \sin(x)$ about $x = 0$? If you have forgotten it you can always rederive the series.

$$\sin(x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$$

2. Find a Taylor series expansion for the following function about $x = 0$:

$$f(x) = \sin(3x^2).$$

$$\sin(3x^2) = \sum_{n=0}^{\infty} \frac{(-1)^n (3x^2)^{2n+1}}{(2n+1)!} = 3\sum_{n=0}^{\infty} \frac{(-1)^n 9^n x^{4n+2}}{(2n+1)!}.$$