CALCULUS CH.9 WS Review #2 NAME ______________________________

1) Given the Taylor series $f(x)=12-20(x-9)-\frac{5}{3}(x-9)^2+\frac{11}{5}(x-9)^3+......$

Find each of the following: $f'(9)=$ $f'''(9)=$

Determine the center, radius of convergence and interval of convergence of the series

2) $\sum_{n=1}^{\infty}\frac{(-1)^{n+1}(x+4)^n}{n\,5^n}$.

center:

radius:

interval of convergence:

Find a power series for the function, centered at c, and determine the interval of convergence.

3) $f(x)=\frac{80}{-18-4x}$, $c=-7$

Find the 3rd degree Taylor polynomial centered at c for #4.

4) $f(3)=11$ $f'(3)=-20$ $f''(3)=\frac{18}{5}$ $f'''(3)=-4$

$5a)$ Calculate by hand

$$\int_0^{\pi/6} \cos x \, dx =$$

$5b)$ Use 6th Degree Taylor series to approximate

$$\int_0^{\pi/6} \cos x \, dx =$$

$6a)$ Calculate by hand

$$f(x) = \sin 2x$$

$$f'\left(\frac{\pi}{3}\right) =$$

$6b)$ Use 5th Degree Taylor series of $\sin x$ to approximate

$$\frac{d}{dx} \sin 2x$$

$$f'\left(\frac{\pi}{3}\right) =$$

$7a)$ Calculate by calculator

$$\int_{-1}^{1} e^{-x^2} \, dx =$$

$7b)$ Use 3rd Degree Taylor series of e^x to approximate

$$\int_{-1}^{1} e^{-x^2} \, dx =$$