Series Review

Search and Rescue

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} \frac{n+1}{3n+1}$$

Write the 5th degree polynomial that represents f(x) centered at x = 0

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

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} \left(\frac{\pi}{6} \right)^n$$

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} n e^{-n^2}$$

Write the 4^{th} degree polynomial that represents the function
Centered at x = 0

$$f(x) = \cos(3x)$$

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} \frac{1}{3n+1}$$

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} (-1)^n \frac{3}{4n+1}$$

The interval of convergence for the series $\sum_{n=1}^{\infty} \frac{x^{3n}}{n8^n}$ is

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty} \frac{n!}{10^n}$$

Write the 3rd degree polynomial for f(x) given the following information

$$f(0) = 3,\ f'(0) = 2,\ f''(0) = -5,\ f'''(0) = 4$$

$$\sum_{n=2}^{\infty} \frac{3}{5^n} =$$

Determine which test would be used to determine convergence or divergence

$$\sum_{n=1}^{\infty}\left(\frac{n+1}{2n+1}\right)^{n}$$

Find the coefficient of the sixth degree term of the Taylor series expansion for f(x) centered at x = 0

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

If the first 5 terms of the Taylor expansion for f(x) about x = 0 are:

$$3 - 7x + \frac{5}{2}x^2 + \frac{3}{4}x^3 - 6x^4 \quad \text{then } f^4(0) =$$