

1. Determine if converges absolutely, conditionally or diverges. State any convergence tests used.

$$\sum_{n=1}^{\infty} \frac{(-1)^n (n^2 - n - 4)}{6n^2 + 9n + 4}$$

2. Evaluate the indefinite integral.

$$\int \frac{\sqrt{x^2 - 4}}{x^4}$$

3. Find the center, radius of convergence, and interval of convergence.

Center =

Radius =

Interval of convergence =  
(In interval notation)

$$\sum_{n=1}^{\infty} \frac{(-1)^n (x-4)^n}{n^2 \cdot 2^n}$$

4. Find the volume of the solid obtained by rotating the region bounded by graphs listed and around the x-axis:

$$y = 14 - x, \quad y = 4x + 9, \quad x = -2$$

5. Find the area of the region enclosed by:

$$y = 10 - x^2, \quad y = -3x$$

6. Evaluate indefinite integral:

$$\int \frac{-(8x+12)}{x^2(x-3)} dx$$

7. Determine if convergent or divergent, state which convergence tests used.

$$\sum_{n=1}^{\infty} \frac{6}{7^n}$$

8. Determine if divergent or convergent.

$$\int_6^{\infty} e^{4x} dx$$