Activity 1:

Is $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{2n^2 + 1}$ absolutely or conditionally convergent?

Activity 2:

Is $\displaystyle\sum_{n=1}^{\infty} \frac{\sin(n)}{n^4}$ convergent or divergent?

Activity 3:

Test the series for absolute convergence:

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{2^n}{n!}$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{n^5}{5^n}$

Activity 4:

(a) Use the Ratio Test to test the series for absolute convergence: $\displaystyle\sum_{n=1}^{\infty} \frac{n^n}{n!}$

(b) Then use the Test for Divergence.

Activity 5:

Test the series for absolute convergence:

(a) $\displaystyle\sum_{n=1}^{\infty} \left(\frac{1 + n - 3n^3}{2n^3 + 5n - 1} \right)^n$

(b) $\displaystyle\sum_{n=1}^{\infty} (-1)^{n-1} \frac{n^n}{8^{2+3n}}$

Activity 6:

Test the series for absolute convergence: $\displaystyle\sum_{n=1}^{\infty} \left(\frac{\ln(n)}{n} \right)^n$