Worksheet 11.6

Full Name: ______________________________ Score: ________

1. Determine whether each series is absolutely convergent, conditionally convergent, or divergent.

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

   (b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{1}{\sqrt[3]{n}}$

   (c) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{1}{n^4}$

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

(e) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\frac{n-1}{n\sqrt{n}}$

(f) $\displaystyle\sum_{n=1}^{\infty}\cos(n\pi)\frac{\sqrt{n}}{2n-1}$

(g) $\displaystyle\sum_{n=1}^{\infty}(-1)^n \frac{2n^4+3n^2-2n+4}{5n^6-n^4+2n^3-n+15}$

(h) $\displaystyle\sum_{n=1}^{\infty}(-1)^n \frac{5n^2+2n^3+3n-2}{n^5-n+25}$

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

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

(k) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\frac{5n^2+3^n+7}{2n^4+2^n-1}$

(l) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\frac{2n^2+5}{\sqrt{9n^6+n^2+8}}$

2. Use the **Ratio Test** or the **Root Test** to determine whether each series converges or diverges.

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{n^2+1}{n2^n}$

(b) $\displaystyle\sum_{n=0}^{\infty} \frac{(-3)^n}{n!}$

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

(d) $\displaystyle\sum_{n=0}^{\infty}\left(\frac{2n^2}{3n^2+n+10}\right)^n$

(e) $\displaystyle\sum_{n=1}^{\infty}\left(\frac{3n^4+n^2+5}{2n^4-n^3+n}\right)^n$

(f) $\displaystyle\sum_{n=0}^{\infty}\left(\frac{n^3+1}{2n^2+5}\right)^n$

(g) $\displaystyle\sum_{n=0}^{\infty}\left(\frac{4n^2}{2n^3+17}\right)^n$