

Name: _____

Math 232 Quiz 8

1. Use the *(Limit) Comparison Test* to determine if the series converges or diverges.

(a) (3 pts) $\sum_{n=1}^{\infty} \frac{|\sin n|}{n^2 + 1}$

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

2. Use the *Ratio/Root Test* to determine if the series converges or diverges.

(a) (3 pts) $\sum_{n=1}^{\infty} \frac{e^n}{n!}$

(b) (3 pts) $\sum_{n=1}^{\infty} \left(\frac{n}{2n-1} \right)^n$

3. Determine whether the series is absolutely convergent, conditionally convergent, or divergent. Use the *Alternating Series Test* where appropriate.

(a) (4 pts) $\sum_{n=1}^{\infty} \frac{(-1)^n}{n\sqrt{n}}$

(b) (4 pts) $\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{\sqrt{2n+1}}$

Bonus. (4 pts) Use the *Integral Test* to determine if the series is convergent or divergent.

$$\sum_{n=4}^{\infty} \frac{1}{n(\ln n)(\ln \ln n)}$$