Comparison Methods for Testing Series Name_____

Determine if the given series converges or diverges. Indicate the method that you use and show the work that leads to your conclusion.

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

2) $\sum_{n=1}^{\infty} \frac{1}{e^n + 1}$

3) $\sum_{n=1}^{\infty} \frac{1}{e^n - 3}$

4) $\sum_{n=1}^{\infty} \left(\frac{1}{n}\right)^e$

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

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

7) $\sum_{n=1}^{\infty} \frac{\sqrt{n^3+5}}{\sqrt{n^5+7}}$

8) $\sum_{n=1}^{\infty} \frac{n+1}{n2^n}$

9) $\sum_{n=1}^{\infty} \frac{2^n}{3^n}$

For exercises 10 and 11, prove that the series converges and find its sum.

10) $\sum_{n=1}^{\infty} \frac{2^n+1}{3^n}$

11) $\sum_{n=0}^{\infty} \frac{3}{n^2+4n+3}$