

7. [12 points] Determine whether the following series converge or diverge (circle your answer). Be sure to mention which tests you used to justify your answer. If you use the comparison test or limit comparison test, write an appropriate comparison function.

a. [3 points] $\sum_{n=1}^{\infty} (-1)^n \frac{\sqrt{n}}{1 + 2\sqrt{n}}$

b. [4 points] $\sum_{n=1}^{\infty} n e^{-n^2}$

c. [5 points] $\sum_{n=1}^{\infty} \frac{\cos(n^2)}{n^2}$