Directions: Show all work on a separate sheet of paper for full credit.

1. Use the Integral Test to determine whether the series is convergent or divergent.

   a) $\displaystyle\sum_{n=1}^{\infty} n^{-0.3}$

   b) $\displaystyle\sum_{n=1}^{\infty} n^2 e^{-n^3}$

2. Determine whether the series is convergent or divergent.

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

   (b) $\displaystyle\sum_{n=1}^{\infty} n^{-0.9999}$

   (c) $\dfrac{1}{5} + \dfrac{1}{7} + \dfrac{1}{9} + \dfrac{1}{11} + \dfrac{1}{13} + \ldots$

   (d) $1 + \dfrac{1}{2\sqrt{2}} + \dfrac{1}{3\sqrt{3}} + \dfrac{1}{4\sqrt{4}} + \dfrac{1}{5\sqrt{5}} + \ldots$

   (e) $\displaystyle\sum_{n=1}^{\infty} \frac{\sqrt{n}+4}{n^2}$

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

   (g) $\displaystyle\sum_{n=1}^{\infty} \frac{\ln(n)}{n^2}$

   (h) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{n^2 + 4}$