Math 20B - Calculus. *Quiz 4-addition.* **July 2015**

Name_____

Determine whether the infinite series below converges and rigorously justify your answer. You certainly do not have to prove facts we stated in class, but you should point out which theorems (or tests) you use.

1. (50 points)

$$\sum_{n=1}^{\infty} \frac{3n^{100} - 3n^2 + n^{95}}{n^{102} + 8n - 5}.$$

2. (50 points) $\sum_{n=1}^{\infty} \sin^3\left(\dfrac{1}{\sqrt{n}}\right).$ (*Hint*: $\lim_{x\to 0} \frac{\sin x}{x} = 1$ (You may apply L'Hopital's rule).)