2. [11 points] Determine the convergence or divergence of the following series. In parts (a) and (b), support your answers by stating and properly justifying any test(s), facts or computations you use to prove convergence or divergence. Circle your final answer. Show all your work.

a. [3 points] $\displaystyle\sum_{n=1}^{\infty} \frac{9n}{e^{-n}+n}$ CONVERGES DIVERGES

b. [4 points] $\displaystyle\sum_{n=2}^{\infty} \frac{4}{n(\ln n)^2}$. CONVERGES DIVERGES

c. [4 points] Let r be a real number. For which values of r is the series $\displaystyle\sum_{n=1}^{\infty}(-1)^n \frac{n^2}{n^r+4}$ absolutely convergent? Conditionally convergent? No justification is required.

Absolutely convergent if : _____

Conditionally convergent if : _____