

6. [8 points]

a. [2 points] Find all values of  $p$  for which the integral  $\int_{-\infty}^{\infty} \frac{1}{(x^2 + 4)^p} dx$  converges. You do not need to show your work. Circle your final answer.

b. [2 points] Find all values of  $p$  for which the integral  $\int_e^{\infty} \frac{e^{px}}{x^3} dx$  converges. You do not need to show your work. Circle your final answer.

c. [4 points] Find the **radius** of convergence of the Taylor series  $\sum_{n=1}^{\infty} \frac{x^{2n}}{n2^n}$ .