

1. Show that each improper integral converges. Then find a definite integral that approximates the improper integral within  $10^{-10}$  of its actual value.

(a) 
$$\int_1^{\infty} \frac{1}{e^x + 2} dx$$

(b) 
$$\int_2^{\infty} \frac{2}{2x^4 - 1} dx$$

2. Show that  $\int_2^{\infty} \frac{1}{e^x + 3x^2} dx$  converges, and approximate its value accurate within 0.0001.