

Name:

1. (3pts) Is the integral $\int_3^{+\infty} \frac{1}{\sqrt[4]{t-1}} dt$ convergent?

2. (3pts) Is the following improper integral divergent or convergent? Explain the answer.

$$\int_0^{\frac{\pi}{2}} \frac{dx}{\sqrt{x \sin x}}$$

3. (4pts) Find the arclength of the curve:

$$y = \frac{2}{3}(x^2 - 1)^{3/2}, \quad 1 \leq x \leq 3$$