Module 4 Review Assignment

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$$x = e^t \ \& \ y = \cos t$$

1. Find the total distance traveled on the close interval $[0, 2]$

$$\int_0^2 \sqrt{1 + \left(\frac{-\sin t}{e^t}\right)^2} e^t dt \approx 6.558$$

2. Find the speed of the particle at $t = 2$

$$-\frac{\sin(t)}{e^t} \Rightarrow \frac{-\sin 2}{e^2} \approx -0.123$$

3. Find $\frac{dy}{dx}$

$$-\frac{\sin(t)}{e^t}$$

4. Find $\frac{d^2y}{dx^2}$