

Problem 1 (2 points). *Compute the indefinite integral. Show all work.*

$$\int (\cos x)e^{\sin x} dx$$

Problem 2 (3 points). *Compute the definite integral. Show all work.*

$$\int_0^{1/2} \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx$$

Problem 3 (2 points). *Compute the area between $y = x$ and $y = x^2$.*

Problem 4 (3 points). *The base of S is the region enclosed by the parabola $y = 1 - x^2$ and the x -axis. The cross-sections of S perpendicular to the y -axis are squares. Draw S and set up an integral to calculate its volume.*