

King Fahd University of Petroleum and Minerals  
College of sciences  
Mathematics Department  
Math 102 (T051)  
Quiz#3

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1. Find the area of the region bounded by the curves  $y = \sin x$  and  $y = \cos x$ ,  $x = 0$  and  $x = \frac{\pi}{2}$ .

2. The region enclosed by the curves  $x = y$  and  $x = y^2$  is rotated about the line  $x = -1$ . Find the volume of the resulting solid. ( Use the washer method 7.2)

- Use cylindrical shells to find the volume of the solid obtained by rotating the region bounded by  $y = 2x^2 - x^3$  and  $y = 0$ .

- Find the exact arc length of the curve  $x = \frac{1}{8}y^4 + \frac{1}{4}y^{-2}$  from  $y = 1$  to  $y = 4$ .