

King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

MATH 102, Sections 4 and 8(042)

Quiz -2(a)

Time: 15 Minutes

Marks:...../9

Name :

Serial #:

ID#:

Section #:

Q.(i). If the region bounded by the curves

$$y = \sqrt{x}, y = 0, x = 4$$

is rotated about the line $y = -4$, then find volume of solid of revolution by cylindrical shell method.

(ii). Find the arc length of the curve : $x = \cos^3 t, y = \sin^3 t$ where $0 \leq t \leq \frac{\pi}{2}$.

(i)

(ii)

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Quiz -2(b)

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Q. Find volume of solid of revolution by revolving about $y - axis$, the region bounded by the graphs of

$$y = x^2 + 1, y = 0, x = 0 \text{ and } x = 1$$

(i) by washer method (ii) by cylindrical shell method.

(i)

(ii)

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Quiz -2(c)

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Q.The region in first quadrant bounded by the curves $y = \frac{x^3}{27}$ and $y = 3x$ is revolved about $y - axis$. Find volume of the resulting solid by the method of washers.

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Quiz -2(d)

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Q.(i). Find arc length of the curve $x = \frac{y^4}{16} + \frac{1}{2y^2}$ when $y \in [-2, -1]$.

(ii). Write expression (do not evaluate the integral) to find volume of solid that results when the region bounded by $x = y^2$ and $x = y + 2$ is rotated about $y - axis$.

(i)

(ii)