| Name: KEY | ID: KEY | Sec: 34(11:00-11:50) 23(1:10-2:00) |
|---|---|---|

MATH-102 Term-132 Class-QUIZ-4

**(show all your work and circle one letter to get a full mark or you will get zero)**

1) The volume of the solid generated by rotating the region enclosed by the curve $y = 3\sqrt{x}$ and the lines $y = 3$ and $x = 0$ about the $x$-axis, is equal to

(a) $\int \pi(3-3x)dx$

(b) $\int \pi(3)(3\sqrt{x})dx$

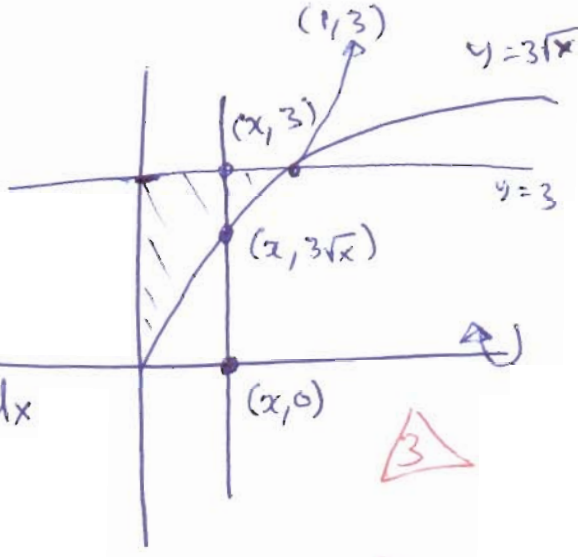
(c) $\int \pi(9-9x)dx$

(d) $\int \pi(9-9x)dx$

(e) $\int \pi(3-3\sqrt{x})dx$

(f) none of the above

by Disk method




$$V = \int_0^1 \pi\left(3^2 - (3\sqrt{x})^2\right)dx$$

3

$$V = \int_0^1 \pi\,(9-9x)\,dx$$

3

$r_{out} = 3$ 2

$r_{in} = 3\sqrt{x}$ 2

2) The base of a solid is a triangular region bounded by the lines $y = x, y = 1$ and $x = 0$. If the cross-section of the solid perpendicular to y-axis are squares, then the volume of the solid is equal to

(a) $\frac{1}{6}$

(b) $\frac{\pi}{6}$

(c) $\frac{1}{3}$

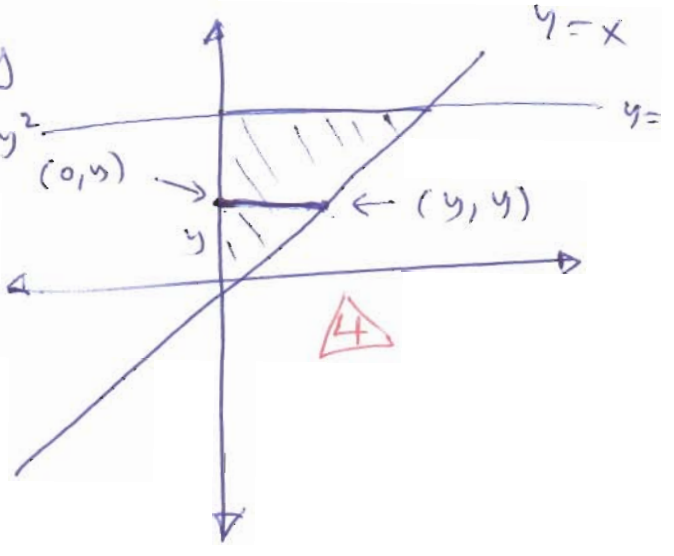
(d) $\frac{\pi}{6}$

(e) $\frac{1}{2}$

(f) none of the above

length of the side $= y$

Area of cross sec$= y^2$




4

$$V = \int_0^1 y^2\,dy$$

3

$$= \left[\frac{1}{3}y^3\right]_0^1 = \frac{1}{3}$$

3