[6 POINTS]



What day of the month is your birthday?
What are the last 2 digits of your address?
What are the last 2 digits of your zip code?

THIS IS A NO CALCULATOR QUIZ

Write, BUT DO NOT COMPUTE, integrals for the volumes of the following solids.

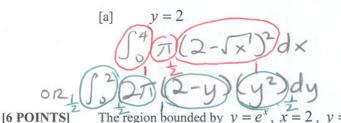
You may use any method you wish.

[6 POINTS] The base of the solid is the region bounded by $y = x^2$ and y = 4. Cross sections perpendicular to the x-axis are

[a] semicircles $\int_{-2}^{2} \sqrt{\frac{1}{8}} \pi \left(4 - x^2\right)^2 dx$

[b] equilateral triangles $\int_{-2}^{2} \sqrt{3} (4-x^{2})^{3} dx$

The region bounded by $y = \sqrt{x}$, y = 2 and x = 0 is revolved about the line



dx dy x = 2, y = 0 and x = 0 is revolved about the line

[a] x = 0 $2\pi x = 0$ $2\pi x = 0$ $2\pi x = 0$ $2\pi x = 0$ $4 - (\ln y)^2$ 2 POINTSMULTIPLE CHOICE (NO PARTIAL CREDIT)

[b] $\frac{1}{2}$ y = -4 $(e^{x} + 4)^{2}$ (b) dx on $(y + 4)^{2}$ (b) dy + 3 Point $(y + 4)^{2}$ $(y + 4)^{2}$ $(y + 4)^{2}$ Slices of a tumor are as given in the table below. Estimate the

An MRI scan indicates that cross sectional areas of adjacent slices of a tumor are as given in the table below. Estimate the volume of the tumor.

x	0.0	0.2	0.4	0.6	0.8	1.0	1.2
A(x)	0.0	0.3	0.4	0.2	0.3	0.1	0.0

[A]
$$1.2(0.0+0.3+0.4+0.2+0.3+0.1+0.0)$$

[B]
$$0.2\pi (0.0^2 + 0.3^2 + 0.4^2 + 0.2^2 + 0.3^2 + 0.1^2 + 0.0^2)$$

CORRECT ANSWER:

[C]
$$\frac{0.2}{2} (0.0 + 2 \times 0.3 + 2 \times 0.4 + 2 \times 0.2 + 2 \times 0.3 + 2 \times 0.1 + 0.0)$$

[D]
$$\frac{0.2}{3} (0.0 + 2 \times 0.3 + 4 \times 0.4 + 2 \times 0.2 + 4 \times 0.3 + 2 \times 0.1 + 0.0)$$

[2 BONUS POINTS]

Sketch a region and an axis of revolution so the volume of the solid created is given by the integral $\int_{0}^{1} \pi (4 - e^{x}) dx$.