

Full Name:

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Section:

Serial number:

Question 1 Find the length of the curve $y = 5 - \ln(\cos x)$ for $0 \leq x \leq \pi/3$.

Question 2 Find the volume of the solid obtained from rotating the region enclosed by $x = \sqrt{1 - y^2}$ and $x = y^2 - 1$ about the line $y = -2$.

Question 3 Rotate the curve $x = 2\sqrt{4-y}$ for $0 \leq y \leq 1$ about the y-axis. Find the surface area of the obtained shape.

Question 4 A solid S has a trapezoidal base given in Figure 1. If the cross section perpendicular to the x-axis is a semi-circle, then find the volume of S .

Question 5 Revolve the region in Figure 2 about the line $x = 1$. Find the volume of the obtained solid.