LAB QUIZ 3

1.

What is the volume of the solid obtained when the area between the x-axis and the curve $y = x^3 + 1$, from $x = -1$ to $x = 1$, is rotated about the line $y = -1$? Exactly one option must be correct)

- a) $\frac{20\pi}{3}$
- b) $\frac{10\pi}{3}$
- c) $\frac{21\pi}{4}$
- d) $4\pi - 1$
- e) None of the above

2. and 3

[redacted] Let Ω be the region bounded by the curve $y = \sqrt{x}$, y= 0 and x = 1. Find the volume of the solid formed by revolving Ω about:

2 [redacted] the y-axis.

a. 4π/15 b. 12π/5 c. 4π/5 d. 8π/3 e. 8π/15 f. None

3 [redacted]. the line x = 1.

a. 4π/15 b. 12π/5 c. 8π/3 d. 4π/5 e. 8π/15 f. None

4.

Which of the following gives the arc length of the curve $f(x)=\cos x$ from $x=0$ to $x=\pi$?

A) $\int_0^{\pi} 2\pi\sqrt{1+\cos^2 x}\,dx$

B) $\int_0^{\pi} 2\pi\sqrt{1+\sin^2 x}\,dx$

C) $\int_0^{\pi} \sqrt{1+\sin^2 x}\,dx$

D) $\int_0^{\pi} \sin x\sqrt{1+\cos^2 x}\,dx$

E) $\int_0^{\pi} \sqrt{1-\sin^2 x}\,dx$

5.

Which of the following gives the surface area of the solid generated by rotating the region bounded by $f(x)=\sin x$ from $x=0$ to $x=\pi$ about the x-axis?

A) $\int_0^{\pi} 2\pi \sin x\sqrt{1+\cos x}\,dx$

B) $\int_0^{\pi} 2\pi \sin x\sqrt{1+\cos^2 x}\,dx$

C) $\int_0^{\pi} 2\pi \cos x\sqrt{1+\sin^2 x}\,dx$

D) $\int_0^{\pi} 2\pi \sin x\sqrt{1+\sin^2 x}\,dx$

E) $\int_0^{\pi} \pi \sin x\sqrt{1+\cos x}\,dx$