socrative

Arc length and surface area test Score:

1. Which integral gives the arc length of the curve y=tan(x) between x = 0 and x = π/4?

(a) $\int_0^{\frac{\pi}{4}} \sqrt{1-\sec^4 x}\,dx$ (b) $\int_0^{\frac{\pi}{4}} \sqrt{1+\sec^4 x}\,dx$

(c) $\int_0^1 \sqrt{\frac{\pi}{4}+\sec^4 x}\,dx$ (d) $\int_0^{\frac{\pi}{4}} \sqrt{1+\tan^2 x}\,dx$

(e) $\int_0^{\frac{\pi}{4}} \sqrt{1+\sec^2 x \tan^2 x}\,dx$

A a
B b
C c
D d
E e

2. If the curve y = ln(x) between x = 1 and x = e is rotated about the y axis, which integral gives the surface area?

(a) $2\pi \int_1^e \frac{\ln x}{\sqrt{1+x^2}}\,dx$ (b) $2\pi \int_1^e x\sqrt{1+\frac{1}{x^2}}\,dx$

(c) $2\pi \int_1^e x\sqrt{1+x^2}\,dx$ (d) $2\pi \int_1^e \ln x\sqrt{1+x^2}\,dx$

(e) $2\pi \int_1^e x\sqrt{1-\frac{1}{x^2}}\,dx$

A a
B b
C c
D d
E e