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$\frac{1}{5+3\cos x}\cdot -3\sin x$

Using the calculator to compute area

A) $\int_0^8 \frac{dx}{5+3\cos(x)}$ $= \int_0^8 \frac{dx}{5+3\cos x} = \int_0^8 (5+3\cos x)^{-1}\,dx = \frac{-1}{-3\sin x}\cancel{\ln|5+3\cos x|}$

1.833

B) Find the Area of the region between the x - axis and the graph of $y = \sqrt{9-4x^2}$.

$9-4x^2=0$

$9=4x^2$

$\frac{9}{4}=x^2$

$A = \int_{-\frac{3}{2}}^{\frac{3}{2}} \sqrt{9-4x^2} = 7.068$

C) For what value of x does $\int_0^x t^2\,dt = 2$

$\int_0^x t^2\,dt = 2$

$\frac{1}{3}t^3\Big]_0^x = 2$

$\frac{1}{3}x^3 = 2$

$x^3 = 6$

$x = \sqrt[3]{6}$

$x = 6^{1/3}$

D) For what value of x does $\int_0^x e^{-t^3}\,dt = .5695$

$\int_0^x e^{-t^3}\,dt = .5695$

$\cancel{\int (-3t^2)} e^{-t^3} = e^{-t^3}$

E) Find the area of the region in the first quadrant enclosed by the coordinate axes and the graph of $x^5 + y^5 = 1$.

$y^5 = 1-x^5$

$y = \sqrt[5]{1-x^5}$

$1-x^5=0$

$1=x^5$

$A = \int_0^1 (1-x^5)^{1/5}\,dx =$

F) Find the average value of $\sqrt{\sin x}$ on the interval [1, 2].

Avg Value = $\frac{\text{Area}}{\text{width}}$

$\frac{\int_1^2 \sqrt{\sin x}}{2-1} = \frac{1}{2-1}\int_1^2 \sqrt{\sin x} =$