$39a) \int_0^1 (1+x)^3\,dx =$

$39a) \int_0^1 (1+x)^3\,dx =$

~~$39b) \int_0^1 (1+2x)^3\,dx =$~~

$A) \int_2^5 5^x\,dx =$

$\int_2^5 e^x\,dx = e^x \Big]_2^5$

$e^x \cdot \ln e$

$\int_2^5 5^x\,dx = \frac{1}{\ln 5} \cdot 5^x \Big]_2^5$

$\frac{d}{dx} = 5^x \ln 5$

Using the calculator to compute area

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

$= 1.833$

$\frac{1}{0}(5+3\cos x)^{0}$

$\sqrt{9-4x^2} = 0$

$9-4x^2=0$

$9=4x^2$

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

$\pm\frac{3}{2} = x$

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

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

$\int (9-4x^2)^{1/2} = \frac{2}{3}(9-4x^2)^{3/2}$

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

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

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

$\frac{1}{3}x^3 - \frac{1}{3}(0)^3 = 2$

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

$x^3 = 6$

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

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

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

$\sqrt[5]{1-x^5} = 0$

$1-x^5=0$

$1=x^5$

$1=x$

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

$\int_0^1 \sqrt[5]{1-x^5}$

$y^5 = 1-x^5$

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

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

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