Subject: value of a function at y(0) given the definite integral
Posted by aqueous0123 on Mon, 22 Oct 2001 20:41:58 GMT
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Say I know the shape of a function y(x). Say it's x^2.
Say I know the integral from a to b of this function. Say it's 1.0.

What I want to do is find out the value of the function at y(0) given the info above, mainly

y(x) = x^2
integral_ab(y(x)) = 1.0
What's the value of y(lowerLimit)?

Does anybody know how to solve for this?

I was going along the lines of:

1) find indefinate integral of y(x), call this Y
2) so... Y(b) - Y(a) = 1.0. Correct? Then I just solve for Y at lower limit.
3) Y(a) = Y(b) - 1.0. => Y(a) is my answer, I think, or do I have to differentiate this?

So if I can find the indefinate integral of y(x) and then just use algebra to solve by that rule Y(upperLimit) - Y(lowerLimit) = definiteIntegral. Am I right?

In my above example of y(x) = x^2, say the limits [a,b] are [0,3]. To find what's going on at x=0, I'd have:

integral(x^2) = Y = x^3/3 ;the indefinite integral of x^2
Y(3) - Y(0) = 1.0
3^3/3 - Y(0) = 1.0
9 - Y(0) = 1.0
Y(0) = 8
;what to do now?? I thought I'd just plug in my lower limit (here 0) for x in x^3/3 = 8, but then eqn is in form const=const!
0^3/3 = 8
1/3 = 8

Ok, now I've gone astray. I must be missing something.

My problems are
1) I'm not sure if I'm approaching this the correct way and
2) How do I get the indefinite integral in IDL. QSimp(), etc. find only definite integrals. I think I need the indefinite integ. so I can

find my value at y(lowerLimit). Or, is my entire approach wrong?

Does this make sense??

THanks