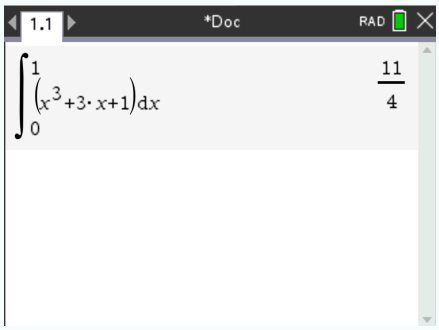
5.5 Definite integrals

5.5.1 Compute the definite integral of a function

Suppose you want to compute the following definite integral:

$$\int_0^1 (x^3 + 3x + 1)\mathrm{d}x$$

In the main screen, press [menu] and select [∫dx]. Fill the parameters as follows:



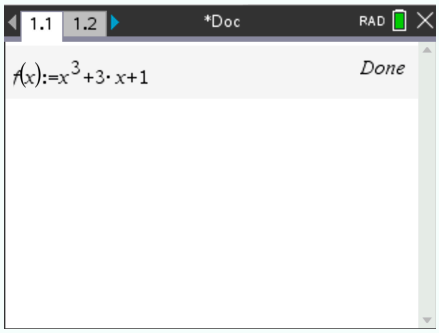
The result should be $\frac{11}{4}$.

5.5.2 Draw the area under a curve

Suppose you want to draw the area between 0 and 1 of the following function:

$$f(x) = x^3 + 3x + 1$$

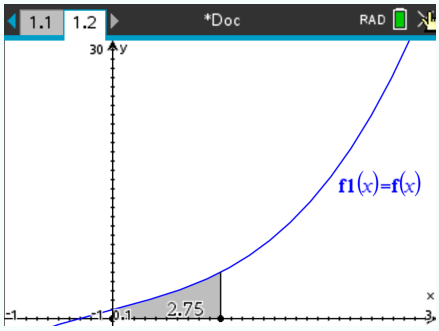
① Enter the function by entering '**f(x)**'. Then press [ctrl] and [menu]. Finally write the expression of the function.



② Open a new page ([ctrl] & [+page doc]) and select Add Graphs. Enter '**f1(x)=f(x)**', press [enter].

③ Choose an appropriate window. Here we chose Xmin=-1, Xmax=3, Ymin=-1 and Ymax=30.

④ Press menu and select Analyze Graph > Integral. You are asked to type the lower bound, type 0 and press enter. Same for upper bound which is 1. The following should be displayed:



2.75 is the area of the grey region