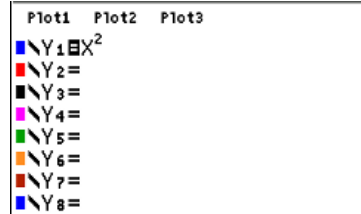


Chapter 11 / **Example 16****Area between a curve and the y-axis**

Find the area of the region bounded by the curve  $y = x^2$  and the y-axis,  $x \in [-2, 0]$ .

Press [F1] [Y=] to display the equation entry screen.

Type  $x^2$  and press [ENTER] to enter the equation as  $Y_1$ .



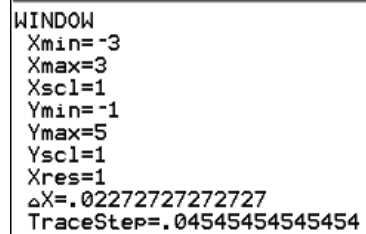
Plot1 Plot2 Plot3  
 $Y_1 = X^2$   
 $Y_2 =$   
 $Y_3 =$   
 $Y_4 =$   
 $Y_5 =$   
 $Y_6 =$   
 $Y_7 =$   
 $Y_8 =$

Press [F2] [WINDOW]

Set the axes to show  $-3 \leq x \leq 3$  and  $-1 \leq y \leq 5$

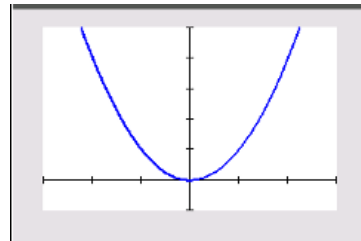
You can leave the last three items as they are.

Press [F5] [GRAPH] when you have finished.



WINDOW  
 $X_{min} = -3$   
 $X_{max} = 3$   
 $X_{scl} = 1$   
 $Y_{min} = -1$   
 $Y_{max} = 5$   
 $Y_{scl} = 1$   
 $X_{res} = 1$   
 $\Delta X = .02272727272727$   
 $TraceStep = .04545454545454$

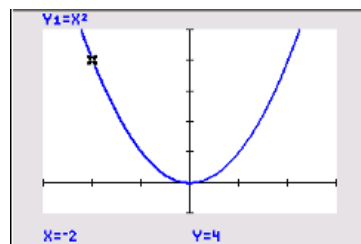
The GDC displays the graph  $Y_1 = x^2$



To find the value of  $y$  when  $x = -2$  press [2nd] [F4] [CALC]  
 1:value

Type -2 and press [ENTER] to change the x-coordinate to -2.

The GDC shows the point  $(-2, 4)$ .



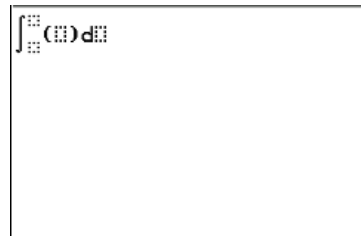
It  $y = x^2$  then  $x = \sqrt{y}$ .

The area is  $\int_0^4 \sqrt{y} dy$

Press [2nd] [QUIT].

To enter the integral template press [ALPHA] [F2] 4:fnInt(.

The template shows places for the limits, the function and the variable that you are integrating with respect to.



The screen shows the integral template  $\int ( ) d( )$  with three empty boxes for input: the first for the lower limit, the second for the upper limit, and the third for the variable of integration.

Chapter 11 / **Example 16****Area between a curve and the y-axis**

Enter the lower limit 0 and using the upper limit 4.

Enter the function  $\sqrt{Y}$

Use  $\leftarrow$   $\rightarrow$   $\uparrow$   $\downarrow$  to navigate around the template.

Type Y.

Press **ENTER**.

$$\int_0^4 \sqrt{y} \, dy = 5.33$$

$$\int_0^4 (\sqrt{Y}) dY$$

.....5.333333544.....