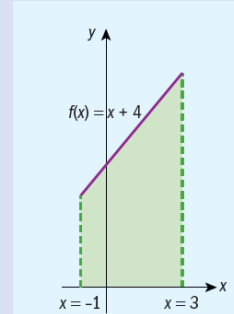


Chapter 11 / **Example 2**

Using the GDC to evaluate areas

Find the area shown by

- a** using the formula for the area of a trapezium
- b** using the integral function on your calculator.



The area is $\frac{1}{2} \times 4 \times 3 + 7 = 20$.

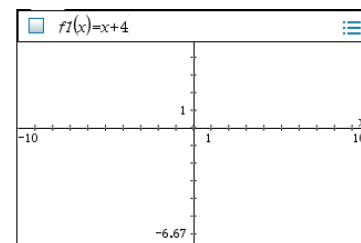
Open a new document and add a Graphs page.

The entry line is displayed at the top of the work area.

The default graph type is function, so 'f1(x)= ' is displayed.

The default axes are $-10 \leq x \leq 10$ and $-6.67 \leq y \leq 6.67$.

Type $x + 4$ and press **enter**.

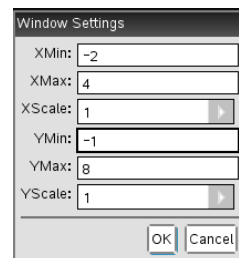


Press **menu** 4:Window/Zoom | 1:Window Settings...

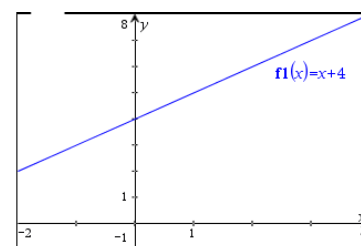
Set the axes to show $-2 \leq x \leq 4$ and $-1 \leq y \leq 8$

Set the scales set to 1.

Press **enter** when you have finished.



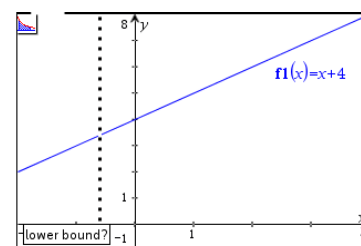
The GDC now displays the function $f1(x) = x + 4$



To find the integral press **menu** 6:Analyze Graph | 6:Integral

To find the intersection you need to give the lower and upper bounds of the region that includes the intersection.

The GDC shows a line and asks you to set the lower bound.

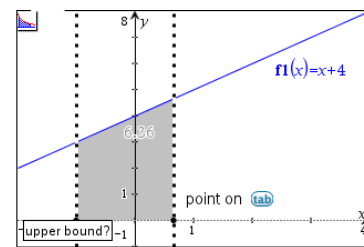


Chapter 11 / **Example 2**

Using the GDC to evaluate areas

Do not use the line to set the lower bound as you need to enter an exact value.

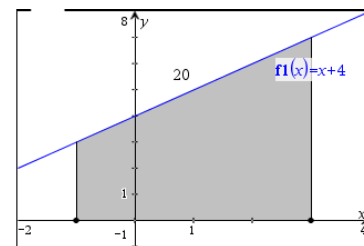
Type -1 and press **enter**.



Type 3, the upper bound, and press **enter**.

The GDC shows the area defined by the integral and its value.

$$\int_{-1}^3 x + 4 \, dx = 20$$

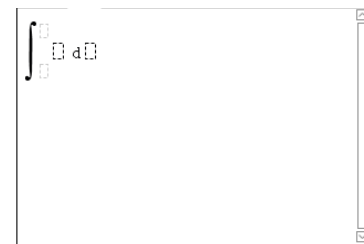


The integral can also be calculated without the need for a graph.

Press **ctrl** **doc** **+** **page** and add a new Calculator page.

Press **int** and select **∫ dx** with the trackpad.

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



Enter the lower limit -1 and using the upper limit 3.

Enter the function $x + 4$

Use **◀▶▲▼** to navigate around the template.

Type X.

Press **enter**.

$$\int_{-1}^3 x + 4 \, dx = 20$$

