

Chapter 2 / **Example 16****Solving absolute value functions**

Solve  $|x + 1| = -2x - 5$ , and check your answer(s). Confirm graphically.

Open a new document and add a Graphs page.

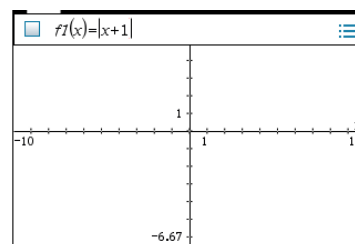
The entry line is displayed at the top of the work area.

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

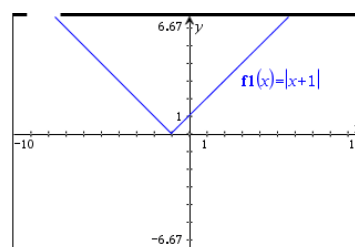
The default axes are  $-10 \leq x \leq 10$  and  $-6.67 \leq y \leq 6.67$ .

Type  $|x + 1|$  and press **enter**.

To enter the modulus function press **|x|** and select **|a|** with the trackpad.

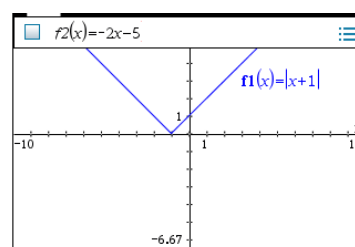


The GDC displays the graph  $f1(x) = |x + 1|$  with the default axes.



Press **tab** to display the entry line again. This time ' $f2(x)=$ ' is displayed.

Type  $-2x - 5$  and press **enter**.

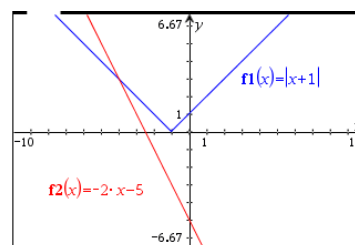


The GDC now displays both graphs:

$$f1(x) = |x + 1|$$

$$f2(x) = -2x - 5$$

with the default axes.



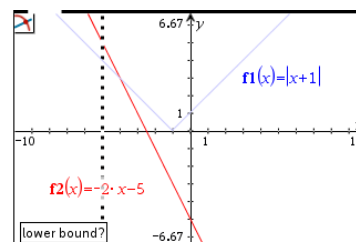
Chapter 2 / **Example 16****Solving absolute value functions**

Press **menu** 6:Analyse Graph | 4:Intersection

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. Move the line using the touchpad and choose a position to the left of the intersection.

Click the touchpad.

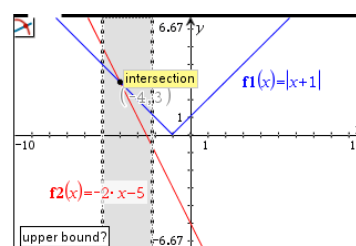


The GDC shows another line and asks you to set the upper bound.

Use the touchpad to move the line so that the region between the lower and upper bounds contains the intersection.

When the region contains the intersection, the calculator will display the word 'intersection' in a box.

Click the touchpad.



The GDC displays the intersection of the two straight lines at the point  $(-4, 3)$ .

The solution is  $x = -4$ .

