Chapter 2 / **Example 17**

Solving absolute value functions

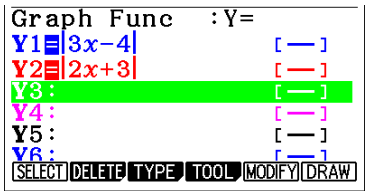
Solve $|3x-4|=|2x+3|$, and check your answer(s) both numerically and graphically.

Press MENU 5 to display the equation entry screen.

Type $|3x-4|$ and press EXE to enter the first equation as Y1.

Type $|2x+3|$ and press EXE to enter the second equation as Y2.

To enter the absolute value function press OPTN F5 NUMERIC F1 Abs



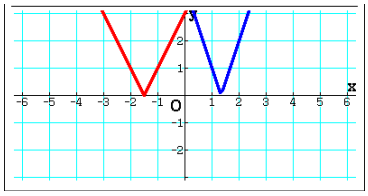
Press F6 DRAW to display the graph screen.

The GDC now displays the two functions:

$Y1=|3x-4|$

$Y2=|2x+3|$

The default axes are $-6.3\le x\le 6.3$ and $-3.1\le y\le 3.1$.

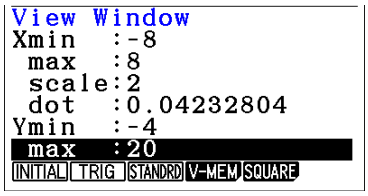


To get a better view of the graphs press F3 V-WIN.

Set the axes to show $-8\le x\le 8$ with a scale of 2 and $-4\le y\le 20$ with a scale of 4.

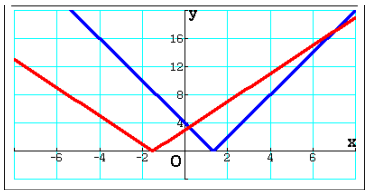
You can leave the other items as they are.

Press EXIT when you have finished.



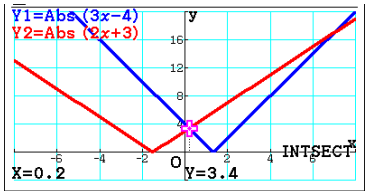
Press F6 DRAW to display the graph screen.

The GDC displays the graphs in a suitable window.



To find the intersections press F5 G-SOLVE and then press F5 INTERSECT.

The GDC shows the first intersection.



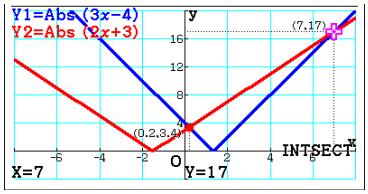
Chapter 2 / **Example 17**

Solving absolute value functions

Press EXE to display the coordinates.

Press ▶ to move to the next intersection and press EXE to display its coordinates.

Press EXIT to leave G-Solv mode and F6 DRAW to display the graph screen again.



The points of intersection are $(0.2, 3.4)$ and $(7, 17)$.

The solutions are $x = 0.2$ and $x = 7$.