# Solving 3-part Inequalities Using a TI-89

## Solve $-7 < 2x - 5 < 3$

## Algebraically:

$-7 < 2x - 5 < 3$
$-2 < 2x < 8$
$-1 < x < 4$

x is all the values between -1 and 4.

(-1, 4)

## Graphically

Solve $-7 < 2x - 5 < 3$

**Set the viewing window to a standard view.**

Graph each part of the inequality.

**Diamond     Y=**

(Clear functions)

$Y1 = -7$
$Y2 = 2x - 5$
$Y3 = 3$

**Diamond  Graph**

The solution is the values of x for which the graph of Y2 is between the graphs of Y1 and Y3.

Find the point of intersection between Y1 and Y2 and between Y2 and Y3.

**F5:  Math**
**5  Intersection**
**1st Curve:**  Cursor on Y1

**Enter**
**2<sup>nd</sup> Curve:** Cursor on Y2
**Enter**
**Lower Bound:** - move cursor to the left of the intersection
**Enter**
**Upper Bound:** - move cursor to the right of the intersection
**Enter**

The intersection is the point (-1, -7).

**Repeat the procedure to find the point of intersection between Y2 and Y3.**
(Use the down arrow to move the cursor to Y2)

The intersection is the point (4, 3).

**The solution is all the <u>x-values</u> between those two points.**      **(-1, 4)**