

## Solving 3-part inequalities

$$\text{Solve } -7 < 2x - 5 < 3$$

### Algebraically:

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

$$-2 < 2x < 8$$

$$-1 < x < 4$$

x is all the values between -1 and 4.

$$(-1, 4)$$

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### Graphically

$$\text{Solve } -7 < 2x - 5 < 3$$

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

Graph each part of the inequality.

**Graph**

**F1: Y=**

(Clear functions)

$$Y1 = -7$$

$$Y2 = 2x - 5$$

$$Y3 = 3$$

**Graph**

**F5: 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.

**More**

**F1: Math**

**More**

**F3: Isect**

**1<sup>st</sup> Curve:** (The cursor should be blinking on one line and the equation number will appear in the upper right hand corner of the window. If you can't see the cursor, use the left or right arrows to bring it into view.)

**Enter**

**2<sup>nd</sup> Curve:** (The cursor should move to the next line and the number will change to 2)

**Enter**

**Guess?:** - move cursor to the point of the intersection using the right or left arrow keys

**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 for the first curve)

The intersection is the point  $(4, 3)$ .

**The solution is all the x-values between those two points.  $(-1, 4)$**