

question @3892

235 views

A4Q2 Box Dimensions

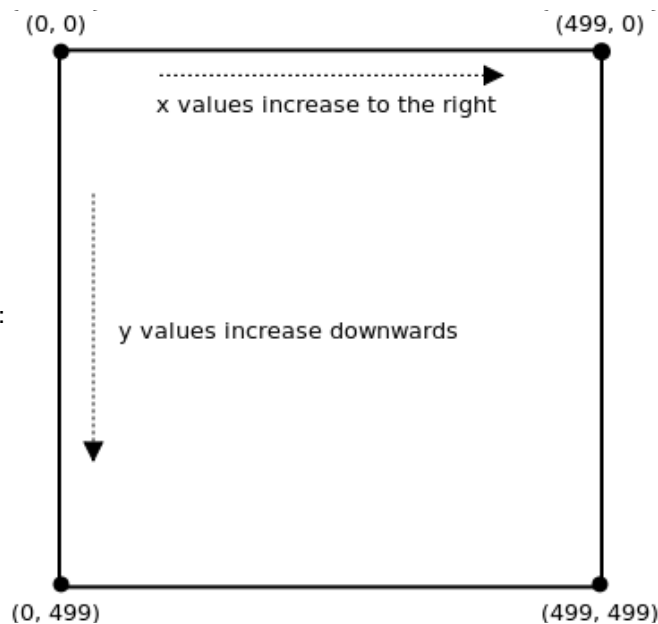
I don't understand how the box dimensions and its location come from the top, bottom, left, right fields? For example, filledbox 4 5 4 5, displays a 2x2 box and it starts 5 from the top and 5 from the left.

From some examples, I think the box is generated with dimensions $(\text{bottom} - \text{top} + 1) \times (\text{right} - \text{left} + 1)$, and starts at $(\text{top} + 1)$ from the top and $(\text{left} + 1)$ from left. Is that correct?

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the students' answer, where students collectively construct a single answer

The way that it works is like this:



You have that as you go down the y axis, have an increase in y coordinate (top and bottom) and then an increase in the x coordinate as you go to the right of the x axis (like the regular cartesian plane).

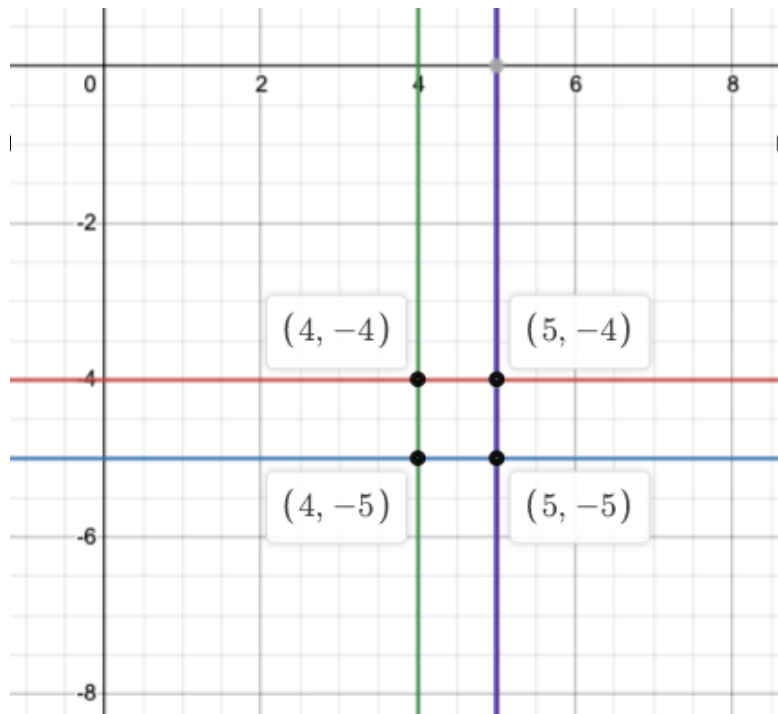
For a box of 4 5 4 5, we are saying that, $\text{top} = 4$, $\text{bottom} = 5$, $\text{left} = 4$ and $\text{right} = 5$.

1. We start from the top left corner $(0, 0)$, and we go down 4 units. That horizontal level is therefore the upper bound of our rectangular box.
2. We start from the top left corner $(0, 0)$ and we go down 5 units. That horizontal level is therefore the lower bound of our rectangular box.
3. We then start from the top left corner $(0, 0)$, and we go to the right 4 units. Draw a vertical line at this point and this is our left bound of the rectangular box.
4. We finally go from $(0, 0)$ again, and then go to the right 5 units. Draw a vertical line at that point and this is our right bound of the rectangular box.

Now what do you get if you follow all of these steps? All these lines bound a rectangular box.

Mathematically on a regular cartesian plane, the 4 steps will create the following plots on the graph:

1. $y = -4$
2. $y = -5$
3. $x = 4$
4. $x = 5$



(Do note that the y coordinates are negative because I am using the regular cartesian plane but for us, the y values are positive as we go down)

If you don't understand this procedure I can draw a diagram for you.

~ An instructor (Brad Lushman) endorsed this answer ~



the instructors' answer, where instructors collectively construct a single answer

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