

Drawing a Christmas card with the ggplot2 package

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I. Introduction

Around the time I got my MS in Stats, I was slowly losing my R knowledge



I wanted to spread joy for the Christmas holiday season

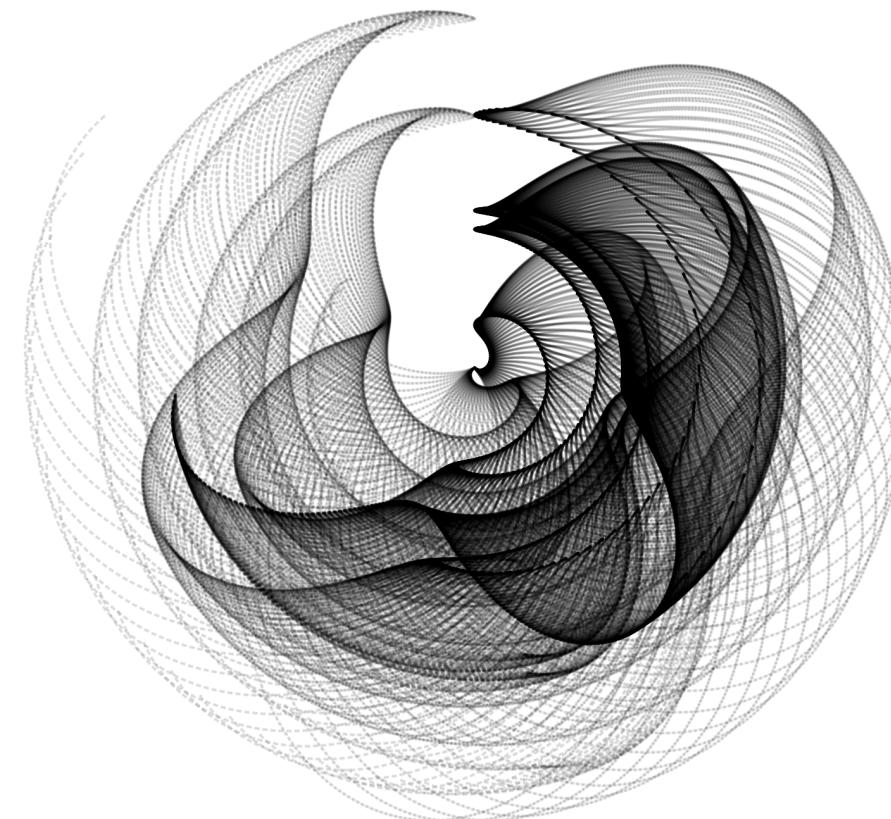


Plus, #rtistry examples inspired me to draw using R.

@djnavarro's [flametree](#)



@cutterkom's [generativeart](#)





DO YOU WANNA BUILD A SHOWMAN?

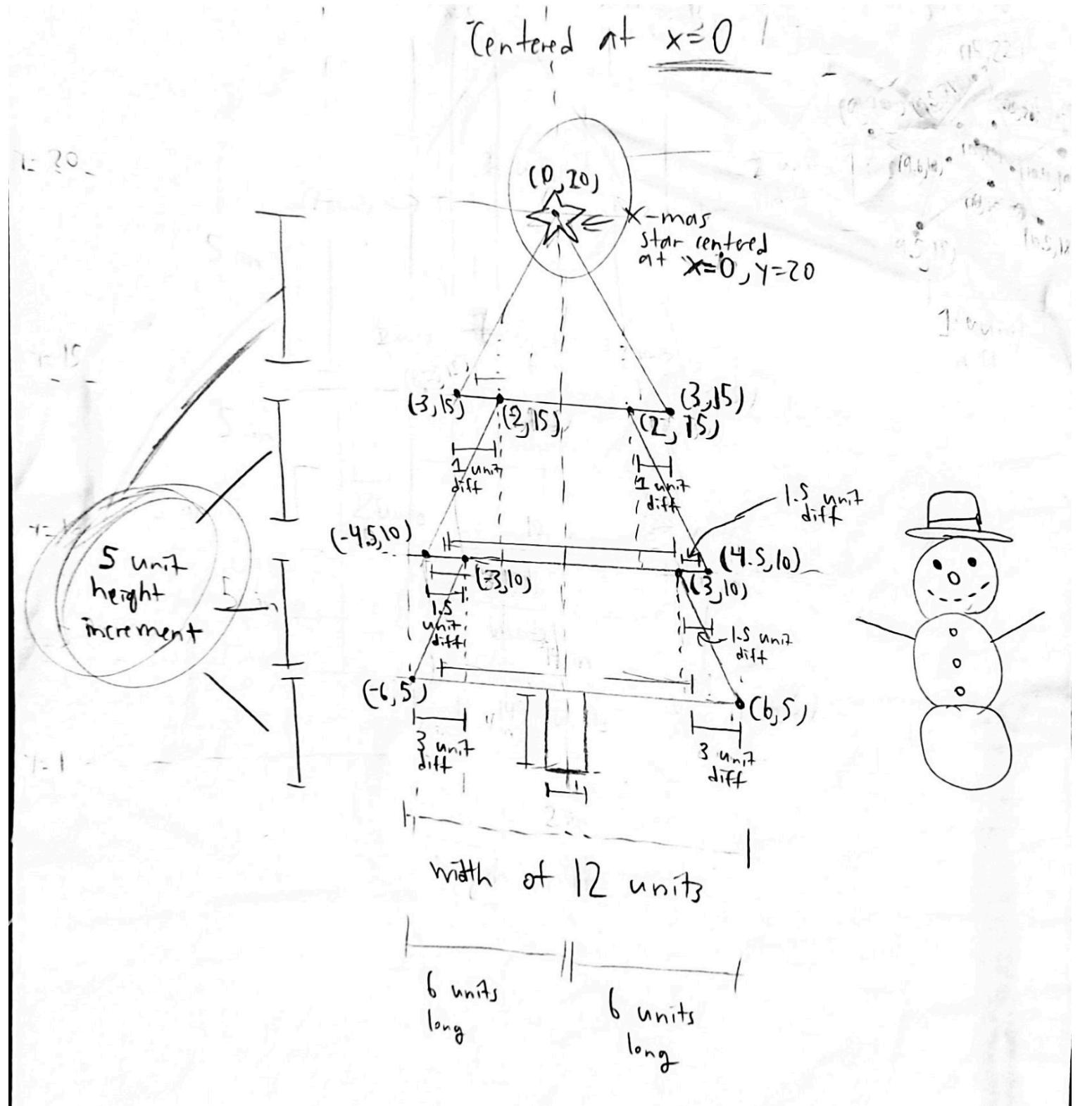
So what did I decide to do then?

- BUILD A CHRISTMAS CARD...WITH R CODE!!!



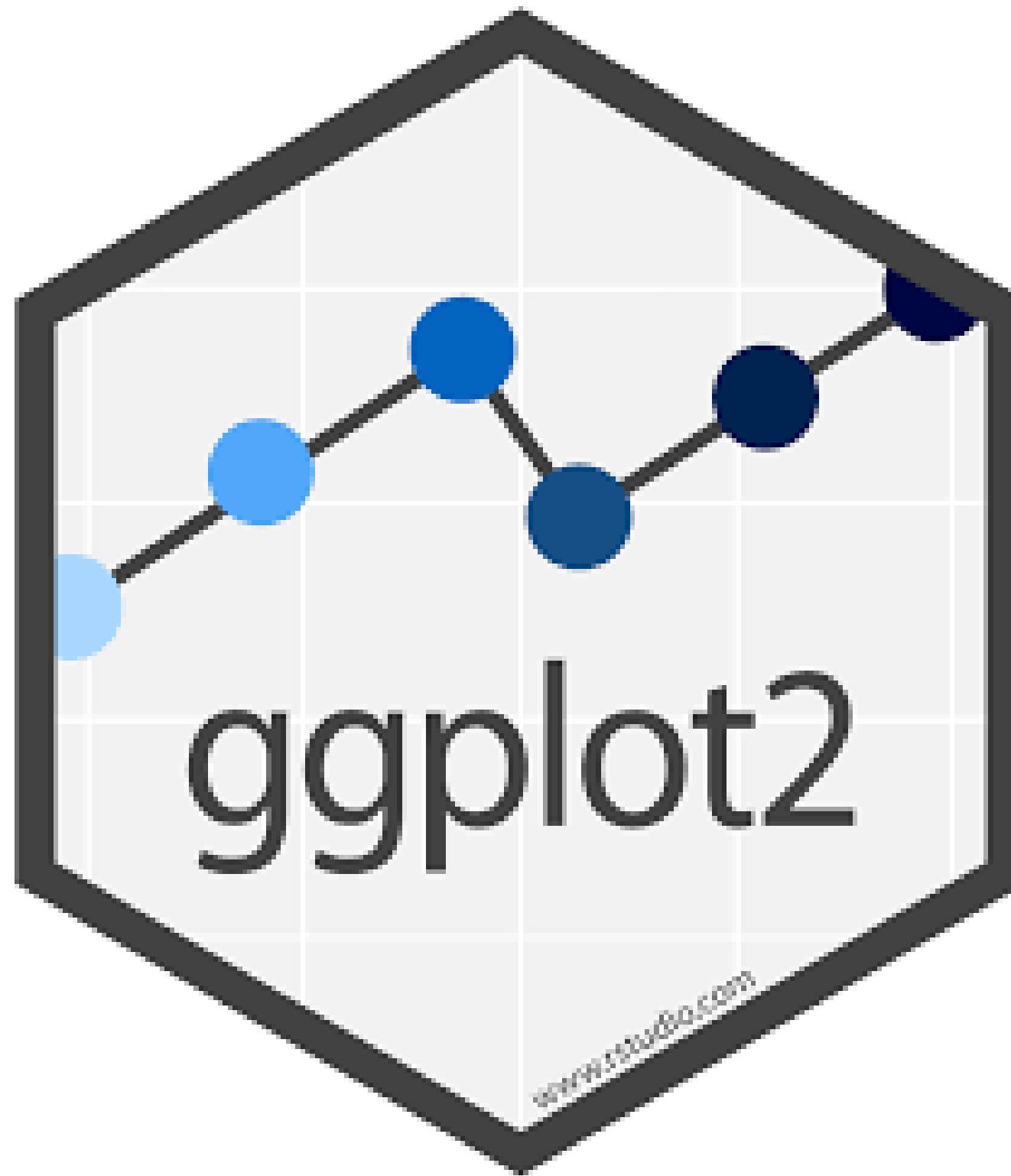
III. The Design Process

a. Visualize the outcome



b. Picking my R packages

Chose the ggplot2 package due to popularity, familiarity, and customization



c. Picking my R packages

- Additional packages
 - [extrafont](#): for loading in custom fonts
 - [dplyr](#): for wrangling and working with large amounts of data



c. Picking my R packages

```
1 library(ggplot2) # for data visualization  
2 library(extrafont) # for loading custom fonts  
3 library(dplyr) # for wrangling data frames
```

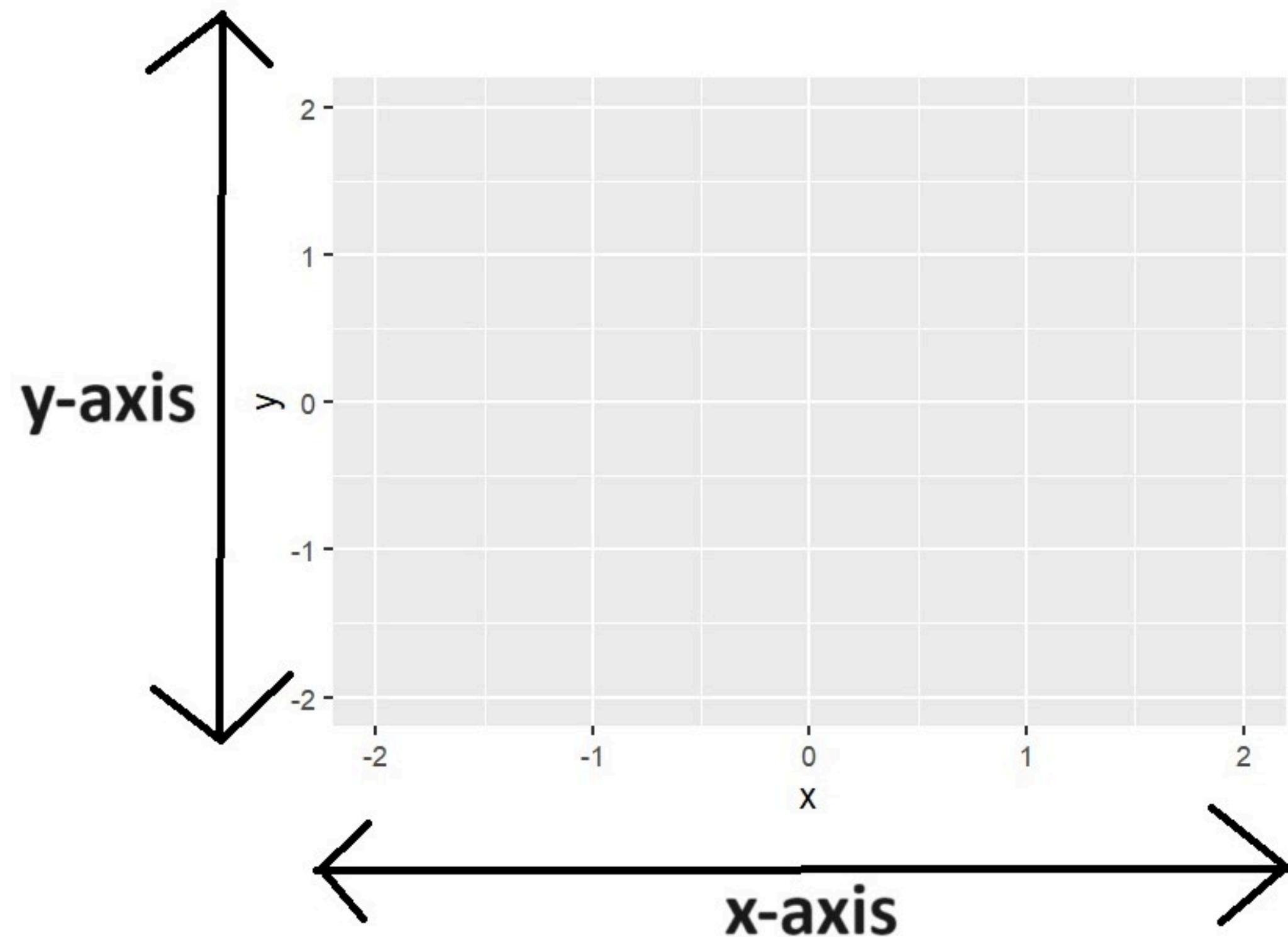
III. The grammar of graphics

a. The grammar of graphics

- The **grammar of graphics** is a way of organizing and prepping how data get visualized
- It usually consists of three major elements
 - The **data**
 - The **aesthetic mapping**: arranging where to display your data
 - The **geometries**: how to display your data (i.e., `ggplot2` functions)

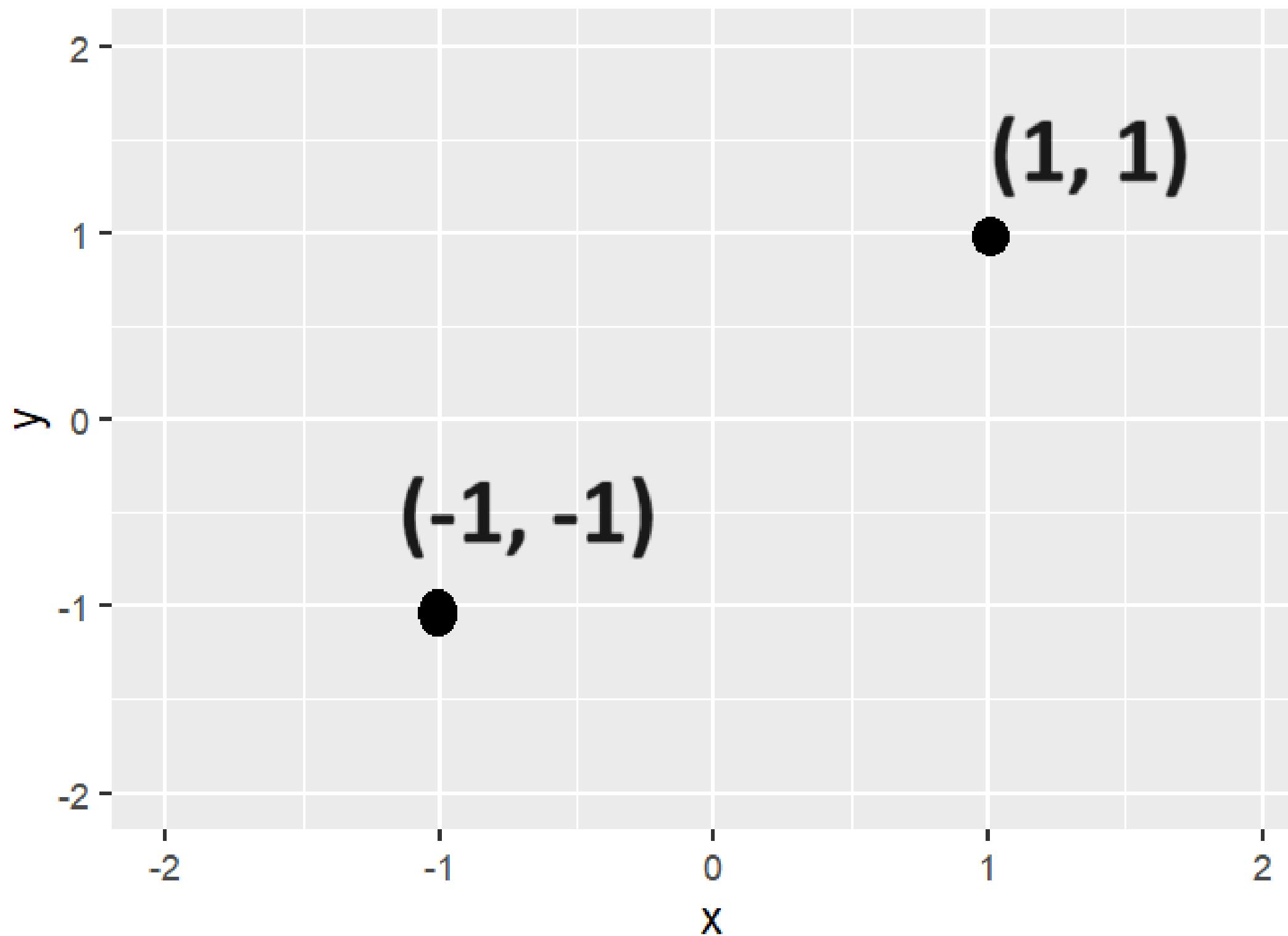
b. The layout of the plotting area

ggplot2 displays data on a coordinate system with an x-axis and y-axis

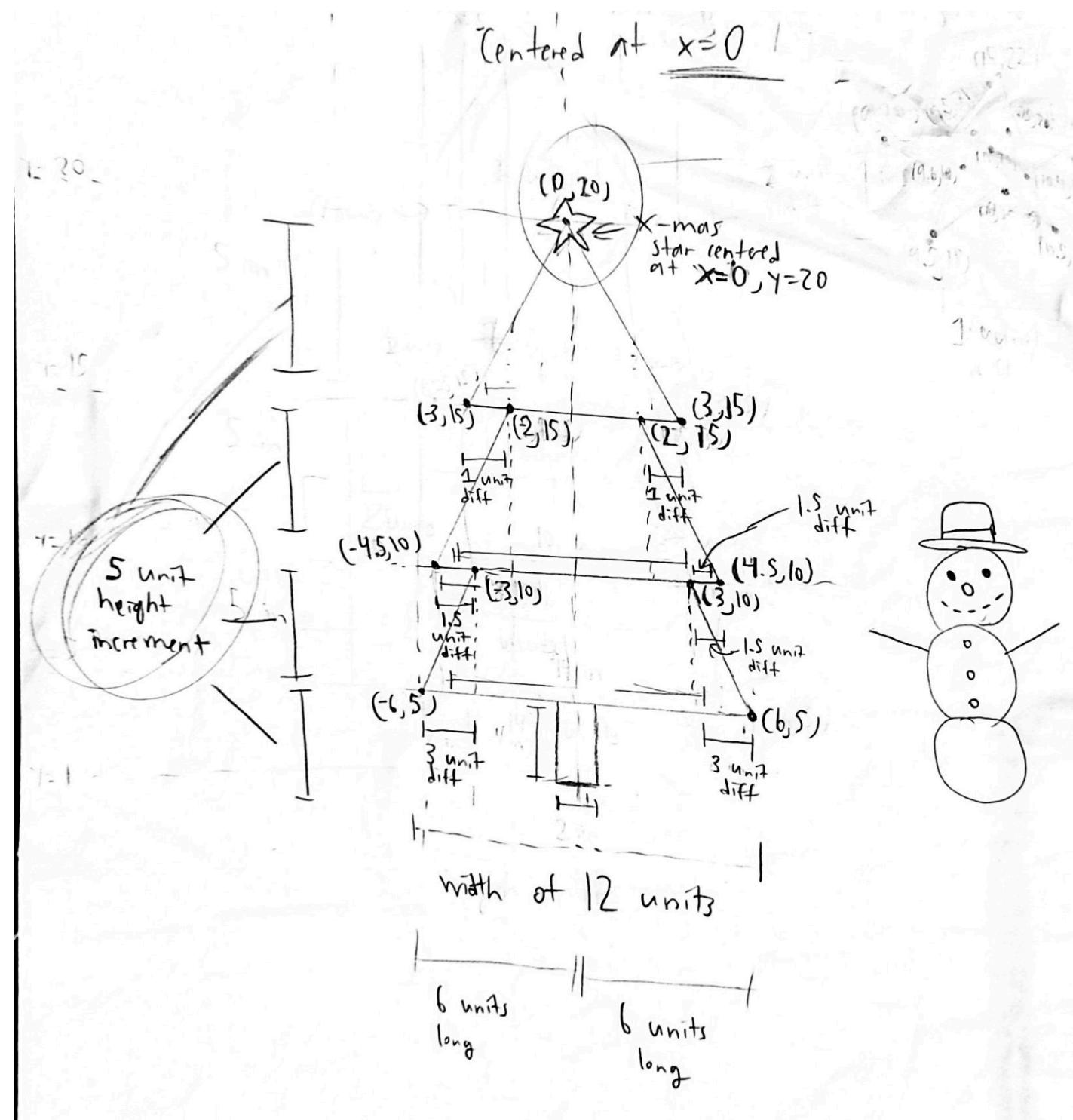


b. The layout of the plotting area

- Points written in the format (x, y)



b. Sketch's coordinates meant for ggplot2's coordinate system



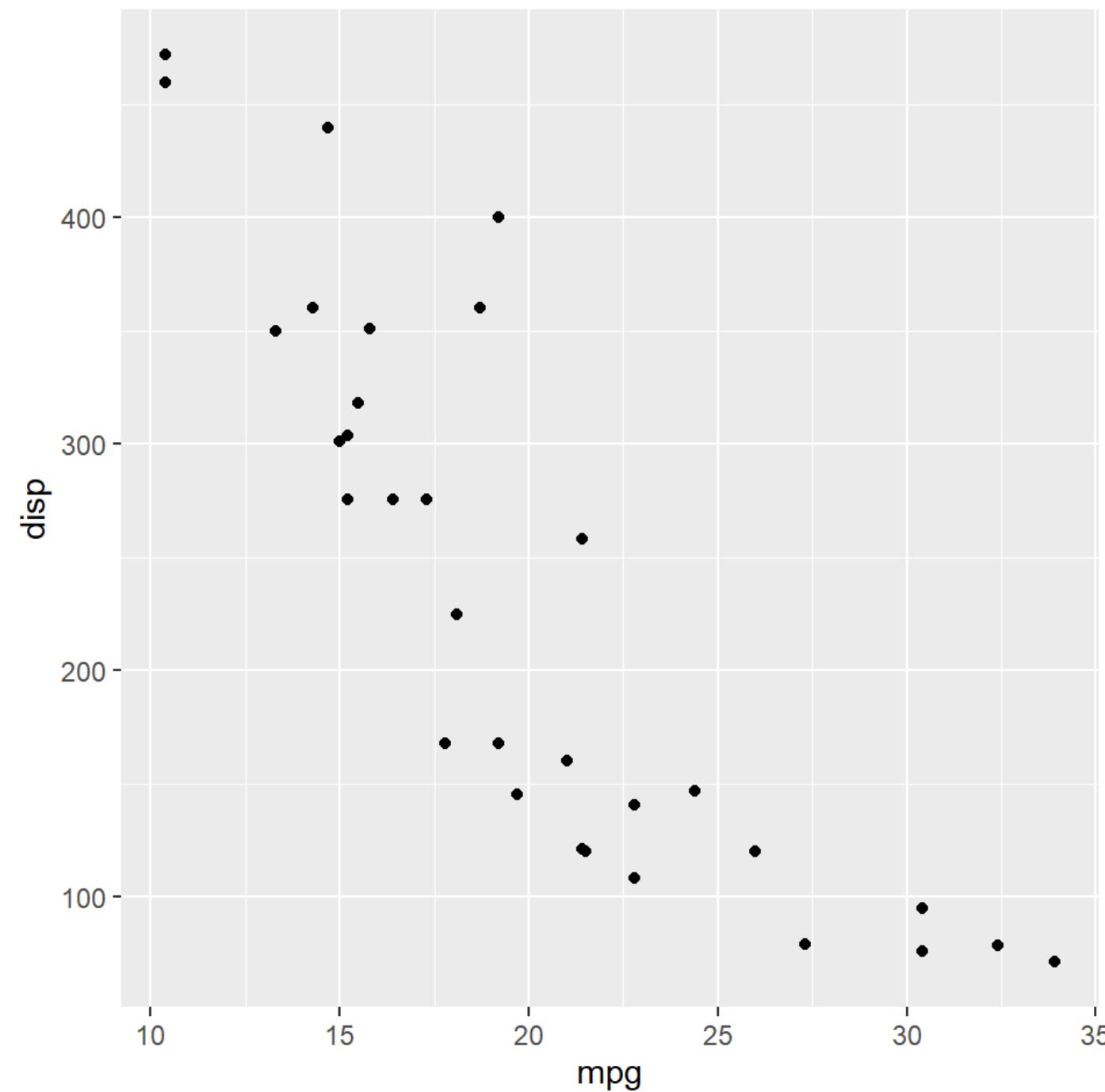
IV. How to plot in ggplot2

Let's show by drawing bare top part of Christmas tree in this card



STEP 1: Pick a `ggplot2` function

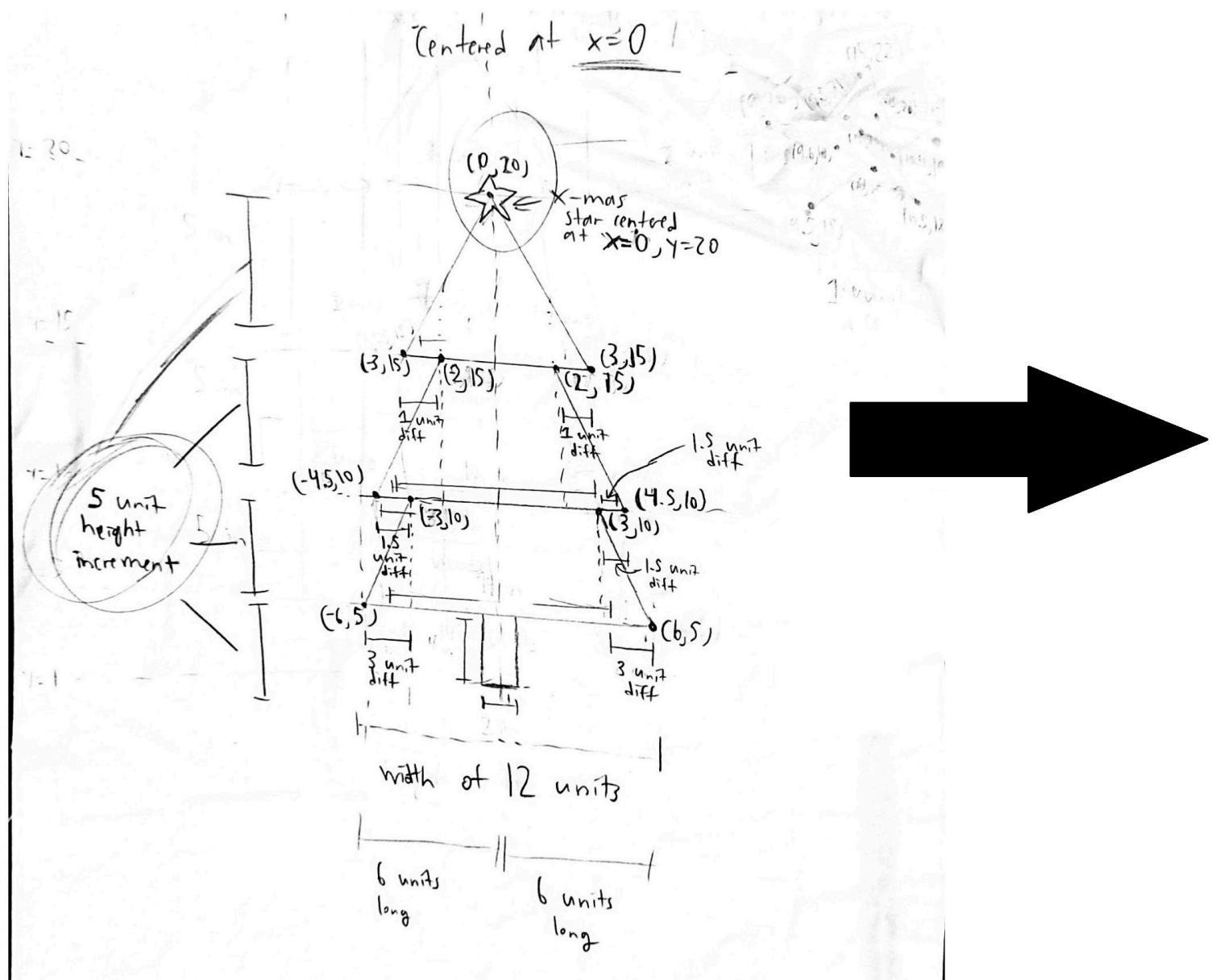
- Ex. `geom_point()` for scatterplots, `geom_polygon()` for shapes



STEP 2: Create your data

- Measurements on sketch translate into points

Sketch



R Code

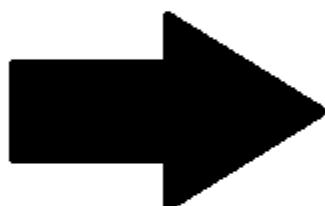
```
```{r, echo=F, eval=T}
xmas_tree <- tribble(
 ~x, ~y,
 0, 20,
 -3, 15,
 -2, 15,
 -4.5, 10,
 -3, 10,
 -6, 5,
 6, 5,
 3, 10,
 4.5, 10,
 2, 15,
 3, 15
)...
```

# STEP 3: Start plotting

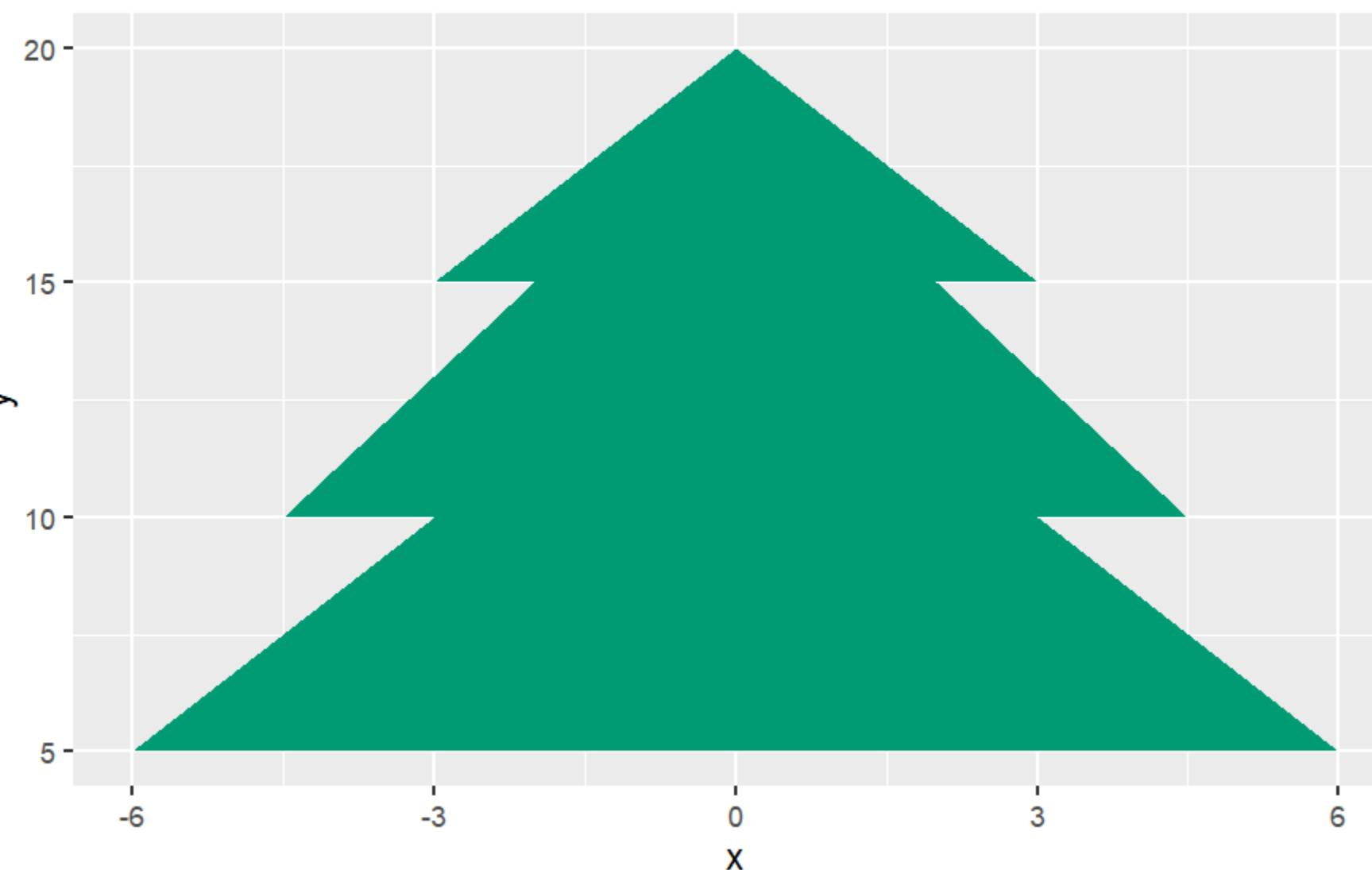
Drawing out the top part of the tree

## R Code

```
```{r, eval=F, echo=T}
ggplot() +
  # DRAWING TREE
  geom_polygon(
    # where to get data
    data = xmas_tree,
    # where to display data
    mapping = aes(x=x, y=y),
    # makes inside of tree green
    fill = "#009E73"
)```
}
```



Result



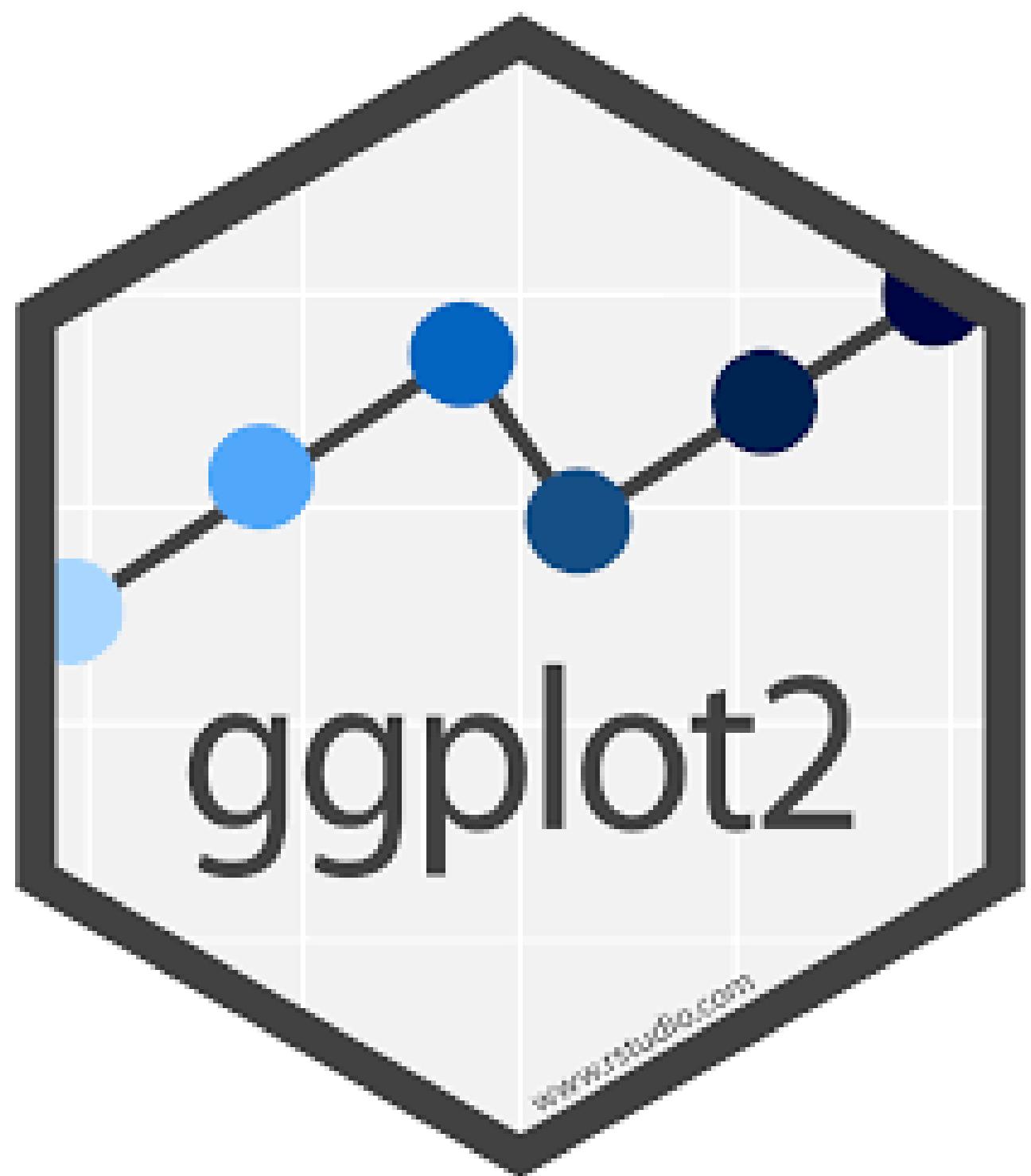
TA DA!



III. Conclusion

Three takeaways from this Christmas card project

1. I learned more about how the `ggplot2` library works



2. I got better at staying organized with complex projects



3. Be yourself as you KEN do it!



Thank you so much!

Here's where to connect with me!

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linkedin.com/in/kenvu1

Ken-Vu

Slides

Scan to see all my links:

