Name:_____   Date:_____

<p style="text-align:center">LAB 2B: Oh the Summaries...
<i>Response Sheet</i></p>

Directions: Record your responses to the lab questions in the spaces provided.

Just the beginning

Extreme values

(1) Find and write down the `min` value and `max` value for your predominant color.

(2) Apply the `range` function to your predominant color and describe the output.

Quartiles (Q1 & Q3)

(3) Fill in the blanks to compute the value of *Q1* for your predominant color.

`quantile(~_____, data = _____, p = 0.25)`

(4) Use a similar line of code to calculate and write down *Q3*, which is the value that's larger than 75% of our data.

The Inter-Quartile-Range (IQR)

(5) Write and run code making a `dotPlot` of your *predominant* color's scores. Make sure to include the `nint` option.

(6) Write down the numbers that split the data up into these 4 pieces.

(7) How long is the interval of the middle two pieces?

Calculating the IQR

(8) Use the values of *Q1* and *Q3* you calculated previously and find the *IQR* by hand.

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(9) Then write and run code using the `iqr()` function to calculate it for you.

(10) Which personality color score has the widest spread according to the *IQR*? Which is narrowest?

Boxplots

(11) By showing someone a `dotPlot`, how would you teach them to make a *boxplot*? Write out your explanation in a series of steps for the person to use.

(12) Use the steps you write to create a sketch of a *boxplot* for your predominant color's scores in your journal.

(13) Then write and run code using the `bwplot` function to create a *boxplot* using `R`.

Our favorite summaries

(14) Fill in the blanks below to compute some of our *favorite* summaries for your predominant color all at once.

`favstats(~_____, data = colors)`

Calculating a range value

(15) Use these two steps to calculate and write down the *range* of your predominant color.

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Introducing custom functions

Example function

Using mm_diff()

(16) In the *console*, fill in the blanks below to calculate the absolute difference between the `mean` and `median` values of your predominant color:

_____(~_____, data = _____)

(17) Which of the four colors has the largest absolute difference between the `mean` and `median` values?

(18) By examining a `dotPlot` for this personality color, make an argument why either the `mean` or `median` would be the better description of the *center* of the data.

Our first function

(19) Using the previous example as a guide, create a function called Range (note the capital 'R') that calculates the *range* of a variable by filling in the blanks below:

```
_____ <- function(_____, _____) {

  values <- range(_____, data = _____)

  diff(_____)

}
```

(20) Use the `Range` function to find the personality color with the largest difference between the `max` and `min` values.

On your own

(21) Write a function called `myIQR` that uses the quantile function to compute the middle 30% of the data.