

## R problems

### Math

1. What is `1+NA`?
2. What is `2/0`?
3. What is `log(0)`?
4. What is `(2+5)/10`?
5. What is `(2+5/10)`?

### Parsing errors

1. What is `2/*1`?
2. What is `2/+1`?
3. What is `((2+2)/(3+4))`?

### Variables

1. What is `a` in the below: `a <- 2 b <- 3 a * b a <- a + b`
2. How many items are in `c(1,NULL,2,NULL,4)`?
3. What is `c` in the following: `c <- 1 'c' <- 2`
4. What happens when I type the following: `2 <- 3`?

### Vectors

1. What is the value of `seq_along(c(3,1,2))`?
2. Is `rep(c(1, 2), each = 4)` the same as `rep(c(1, 2), times = 4)`?
3. What are the values of `d` and `e` in the following: `a <- 1:5 b <- c(1:1,3,3,2)`  
`d <- a[b] e <- b[a]`
4. What is the value of `c(1:3,4:6)[0]`?

5. What is the value of `5[1:3]`?
6. What is the value of `1:6[rep(c(TRUE,FALSE),3)]`?
7. What is the value of `c(1,3,5,2,4,6) > 2`
8. What are the values of `b` and `c` in the following:  
`a <- 1:10 b <- a > 3 & a < 8 c <- a > 3 & a <= 2`

## Matrices

1. What is the value of `a[,1]` in the following:  
`a <- matrix(1:6, nrow=2)`
2. What is the value of `a[2,]` (from previous)?

## Dataframe Structure and indexing

1. What are the dimensions of the `Orange` dataframe?
2. What are the names of the variables in the `iris` dataframe?
3. What are the rownames of the `iris` dataframe?
4. What is the first row of data from the `PlantGrowth` dataframe?

## Data summaries

1. What is the mean `weight` in the `PlantGrowth` dataframe?
2. How many unique values are there for the `group` variable in the `PlantGrowth` dataframe?
3. What is the range of the `weight` variable in the `PlantGrowth` dataframe?
4. What is the correlation between `height` and `weight` in the `women` dataframe?
5. How many `spontaneous` abortions are reported at each level of `education` in the `infert` dataframe?
6. Which state had the highest `Murder` rate in the `USArrests` dataset?

## Plotting

1. How would we draw a scatterplot of `height` and `weight` for the `women` dataframe?
2. How would we make it red?
3. How would we make a boxplot of `circumference` by `Tree` in the `Orange` dataframe?
4. How would we plot the `anscombe` sets?

## Scale construction

1. Combining `spontaneous` and `induced`, what is the mean number of abortions for individuals in the `infert` dataframe?

## Regression

1. What is the effect of `UrbanPop` on `Murder` rate in the `USArrests` dataframe?
2. What are the effects of `Catholic` and `Education` on `Fertility` in the `swiss` dataframe? Is there an interaction?
3. What are the effects of `supp` and `dose` on `len` in the `ToothGrowth` dataframe? Is there an interaction?

## Regression plotting

1. How would you draw a plot of the effect of `speed` on stopping `distance` in the `cars` dataframe?
2. How would we plot the effects (on `len`) of `dose` for each type of `supp` in the `ToothGrowth` dataframe?