Respostas a Lição de Casa 1 - 2023

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Problema 1

```
round((log10(67000) * 92 + 36)/sqrt(759), 1)
```

```
## [1] 17.4
```

Problema 2

```
set.seed(42) # so everyone produces the same answer

(x <- round(rnorm(20, mean = 100, sd = 10), 2))
```

```
##  [1] 113.71  94.35 103.63 106.33 104.04  98.94 115.12  99.05 120.18  99.37
## [11] 113.05 122.87  86.11  97.21  98.67 106.36  97.16  73.44  75.60 113.20
```

a. Segundo elemento: 94.35

b. class e type de x:

```
class(x)
```

```
## [1] "numeric"
```

```
typeof(x)
```

```
## [1] "double"
```

c. Valor máximo de `x`

```
max(x)
```

```
## [1] 122.87
```

Problema 3

```r
soro <- readRDS("../einstein_soro.rds")
```

a. Quantos casos:

```r
nrow(soro)
```

```
## [1] 200
```

b. Quantas variáveis:

```r
length(soro)
```

```
## [1] 10
```

c. Class e type de `soro`

```r
class(soro)
```

```
## [1] "data.frame"
```

```r
typeof(soro)
```

```
## [1] "list"
```

d. Data de coleção do 3º caso

```r
soro$dt_collect[3]
```

```
## [1] "16/06/2020"
```

e. Ano de nascimento do 3º até 10º caso

```r
soro$birth_yr[3:10]
```

```
## [1] 1997 2006 1983 1963 1988 1971 1968 1976
```

f. Quantas cidades diferentes?

```r
length(unique(soro$city))
```

```
## [1] 11
```

Problema 4

a. Importar o conjunto

```r
library(tidyverse, quietly = TRUE)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.3     v readr     2.1.4
## v forcats   1.0.0     v stringr   1.5.0
## v ggplot2   3.4.4     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.0
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```r
# Primeira tarefa
trplas <- readr::read_csv(here::here("../trplasma.csv"), col_names = TRUE,
                          col_types = "cfffffffffffffffffffffffffffffffffffffffffffffffffffffff")
```

b. Fazer tidy

```r
trplas_tidy <- trplas %>%
  tidyr::pivot_longer(., cols = tr41bl:tr219_12, names_to = "mutacao", values_to = "value")
tibble::glimpse(trplas_tidy)
```

```
## Rows: 1,748
## Columns: 3
## $ n       <chr> "1", "1", "1", "1", "1", "1", "1", "1", "1", "1", "1", "1", "1~
## $ mutacao <chr> "tr41bl", "tr44bl", "tr65bl", "tr67bl", "tr69bl", "tr70bl", "t~
## $ value   <fct> 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0,~
```

Problema 5

a. log carga viral

```r
pac_data <- readxl::read_excel("../pac_demo.xlsx")
pac_data$log_cv <- log10(pac_data$copias_cv)
glimpse(pac_data)
```

```
## Rows: 50
## Columns: 11
## $ codepac      <dbl> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17~
## $ idade        <dbl> 60, 73, 51, 50, 44, 63, 25, 61, 49, 41, 44, 81, 25, 60, 5~
## $ sexo         <chr> "Masculino", "Masculino", "Feminino", "Masculino", "Femin~
## $ ufnasc       <chr> "RS", "SP", "SP", "SP", "CE", "MA", "SP", "RS", "RS", "MS~
## $ raca         <chr> "NA", "Branca", "Parda", "Branca", "Parda", "NA", "Parda"~
## $ escol        <chr> "NA", "De 8 a 11 anos", "De 4 a 7 anos", "De 8 a 11 anos"~
## $ gestante     <chr> "Nao", "Nao", "Nao", "NA", "Nao", "Nao", "Nao", "Nao", "N~
## $ copias_cv    <dbl> 5200, 1947, 480000, 257313, 2585, 84, 1286, 13000, 24000,~
## $ contagem_cd4 <dbl> 898, 958, 958, 142, 524, 256, 353, 928, 66, 66, 388, 471,~
## $ contagem_cd8 <dbl> 1311, 817, 817, 1009, 586, 651, 393, 1740, 801, 801, 450,~
## $ log_cv       <dbl> 3.716003, 3.289366, 5.681241, 5.410462, 3.412461, 1.92427~
```

b. Escolaridade como Fator

```
pac_data$escol <- factor(pac_data$escol, levels = c("Nenhuma",
                      "De 1 a 3 anos", "De 4 a 7 anos",
                      "De 8 a 11 anos", "De 12 e mais anos"))
  table(pac_data$escol)
```

```
##
##           Nenhuma     De 1 a 3 anos     De 4 a 7 anos    De 8 a 11 anos
##                 1                 3                12                 7
## De 12 e mais anos
##                 2
```