

Lab Exercise #1

Michael T. Simpron

2025-09-29

```
#1
#a)
vector <- -5:5
vector
```

```
## [1] -5 -4 -3 -2 -1 0 1 2 3 4 5
```

```
#b
x <- 1:7
x
```

```
## [1] 1 2 3 4 5 6 7
```

```
#2
#a)
vector <- seq(1, 3, by = 0.2)
vector
```

```
## [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
```

```
#3
ages <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41, 51, 35,
24, 33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54, 58, 26,
18)
#A
ages[3]
```

```
## [1] 22
```

```
ages[c(2,4)]
```

```
## [1] 28 36
```

```
ages[-1]
```

```
## [1] 28 22 36 27 18 52 39 42 29 35 31 27 22 37 34 19 20 57 49 50 37 46 25 17 37
## [26] 43 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

```
#4
x <- c("first"=3, "second"=0, "third"=9)
names(x)
```

```
## [1] "first" "second" "third"
```

```
x
```

```
## first second third
##      3      0      9
```

```
x[c("first", "third")]
```

```
## first third
##      3      9
```

```
#5
x <- -3:2
x[2] <- 0
x
```

```
## [1] -3  0 -1  0  1  2
```

```
#6
month <- c("Jan", "Feb", "March", "Apr", "May", "June")
price_per_liter_php <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
purchase_quantity_liters <- c(25, 30, 40, 50, 10, 45)
```

```
#a)
fuel_purchase <- data.frame(
  Month = month,
  Price_per_Liter_PHP = price_per_liter_php,
  Purchase_Quantity_Liters = purchase_quantity_liters
)
```

```
fuel_purchase
```

```
##   Month Price_per_Liter_PHP Purchase_Quantity_Liters
## 1   Jan              52.50                      25
## 2   Feb              57.25                      30
## 3 March              60.00                      40
## 4   Apr              65.00                      50
## 5   May              74.25                      10
## 6   June             54.00                      45
```

```
#b)
average <- weighted.mean(price_per_liter_php, purchase_quantity_liters)
average
```

```
## [1] 59.2625
```

```
rivers
```

```
## [1] 735 320 325 392 524 450 1459 135 465 600 330 336 280 315 870
## [16] 906 202 329 290 1000 600 505 1450 840 1243 890 350 407 286 280
## [31] 525 720 390 250 327 230 265 850 210 630 260 230 360 730 600
## [46] 306 390 420 291 710 340 217 281 352 259 250 470 680 570 350
## [61] 300 560 900 625 332 2348 1171 3710 2315 2533 780 280 410 460 260
## [76] 255 431 350 760 618 338 981 1306 500 696 605 250 411 1054 735
## [91] 233 435 490 310 460 383 375 1270 545 445 1885 380 300 380 377
## [106] 425 276 210 800 420 350 360 538 1100 1205 314 237 610 360 540
## [121] 1038 424 310 300 444 301 268 620 215 652 900 525 246 360 529
## [136] 500 720 270 430 671 1770
```

```
data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers), var(rivers),
sd(rivers), min(rivers), max(rivers))
data
```

```
## [1] 141.0000 83357.0000 591.1844 425.0000 243908.4086 493.8708
## [7] 135.0000 3710.0000
```

```
#a)
```

```
celebrities <- c("Tom Cruise", "Rolling Stones", "Oprah Winfrey", "U2", "Tiger Woods", "Steven Spielberg", "J.K. Rowling")
```

```
annual_pay <- c(67,90,225,110,90,332,302,41,52,88,55,44,55,40,233,
34,40,47,75,25,39,45,32,40,31)
```

```
power_ranking <- 1:25
```

```
power_ranking[celebrities == "J.K. Rowling"] <- 15
```

```
annual_pay[celebrities == "J.K. Rowling"] <- 90
```