Unit 5 - Week 4

Course outline

How does an NPTEL online course work?

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- ● Lecture 14 : Arithmetic Mean
- ○ Lecture 15 : Median
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Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-25, 23:59 IST.

1) Suppose the number of female workers in 10 offices are recorded and two readings on these numbers get missed. The collected observations are as follows: 11, 21, 15, 16, 17, NA, 8, NA, 12, 21. Which of the following is the correct command to obtain the arithmetic mean of this data in R? ***1 point***

○ mean(c(11,21,15,16,17,NA,8,NA,12,21), na.rm=TRUE)
○ mean(11,21,15,16,17,NA,8,NA,12,21, na.rm=TRUE)
○ mean((11,21,15,16,17,NA,8,NA,12,21), na.rm=TRUE)
○ sum((11,21,15,16,17,NA,8,NA,12,21), na.rm=TRUE)/length((11,21,15,16,17,NA,8,NA,12,21), na.rm=TRUE)

No, the answer is incorrect.
Score: 0

Accepted Answers:
mean(c(11,21,15,16,17,NA,8,NA,12,21), na.rm=TRUE)

2) The number of cars passing through the traffic light per minute are recorded for 200 days as follows and stored in a data vector `car`: ***1 point***

6, 1, 6, 6, 8, 3, 9, 3, 4, 2, 1, 8, 3, 4, 6, 10, 7, 4, 8, 6, 6, 5, 2, 4, 5, 8, 8, 7, 9,10, 9, 8, 7, 2, 7, 2, 9, 2, 8, 2, 6, 9, 2, 5, 8, 3, 1, 6, 8, 5, 3, 4, 6, 6, 7,10, 4, 8, 2, 8, 6, 1, 4, 6, 3, 7,10, 3, 6, 3, 6, 6, 9, 7, 8, 4, 5, 1, 9, 8, 8, 2, 4, 6, 4, 9, 5, 7, 7, 2, 3, 8, 5, 6, 5, 2, 2, 8, 3, 2, 9, 3, 8, 1, 6, 5, 7, 4, 2, 2, 7, 8, 5, 2, 8, 8, 6, 5, 9, 6, 4, 8, 5, 8, 4, 7, 9, 8, 3, 9, 2, 8, 9, 7, 3, 3, 5, 5, 4, 7, 5, 2, 7, 3, 8, 3, 7, 5, 7, 1, 3, 7, 7, 4, 6, 3, 1, 6, 9, 3, 5, 3, 9, 3, 7, 5, 9, 4, 9, 8, 8, 7, 3, 2, 3, 9, 1, 6, 6, 3, 6, 7, 2, 7, 2, 2, 4, 8, 5, 8, 6, 2, 2, 6, 5, 9, 7, 4, 8, 8.

Which of the following relation holds true where `wt=c(5,2,10,4,2,6,2,5,9,3)`?

○ `weighted.mean(wt, as.numeric(table(car))) > mean(car)`
○ `weighted.mean(wt, as.numeric(table(car))) = mean(car)`
○ `weighted.mean(wt, as.numeric(table(car))) < mean(car)`
○ `weighted.mean(wt, as.numeric(table(car))) = 0`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`weighted.mean(wt, as.numeric(table(car))) < mean(car)`

3) A group of ten patients were asked to take an exercise every hour but they didn't followed it. Suppose the number of times they took the exercise is recorded as follows but two patients left without providing their observations: 8, 7, 6, NA, 5, 9, NA, 5, 3, 4. Which of the following is the correct command to obtain the median of this data in R? ***1 point***

○ median(c(8, 7, 6, NA, 5, 9, NA, 5, 3, 4), na.rm=true)
○ median(c(8, 7, 6, NA, 5, 9, NA, 5, 3, 4), na.rm=TRUE)
○ median((8, 7, 6, NA, 5, 9, NA, 5, 3, 4), na.rm=true)
○ median(c(8, 7, 6, na, 5, 9, na, 5, 3, 4), na.rm=true)

No, the answer is incorrect.
Score: 0

Accepted Answers:
median(c(8, 7, 6, NA, 5, 9, NA, 5, 3, 4), na.rm=TRUE)

4) suppose the number of absent employees is recorded in ten offices but three observations get missing as follows: 14, 11, 13, NA, 18, 17, 12, NA, 14, NA. Which of the following is the correct command to obtain the geometric mean of this data in R? ***1 point***

○ prod(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA), na.rm=TRUE)^(1/length(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA), na.rm=TRUE))
○ prod(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA), na.rm=TRUE)^(1/length(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA)), remove NA=TRUE))
○ prod(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA))^(1/length(c(14, 11, 13, NA, 18, 17, 12, NA, 14, NA), na.rm=TRUE))
○ None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
None of these

5) Suppose the number of fishes caught from 10 ponds are recorded as follows and two observations are missing: 330, 238, 368, NA, 245, 259, 345, NA, 427, 430. Which of the following is the correct command to obtain the product of this data in R? ***1 point***

○ prod(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=true)
○ prod((330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE)
○ prod(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)
○ product(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=T)

No, the answer is incorrect.
Score: 0

Accepted Answers:
prod(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)

6) The number of hours in which the fever of 10 patients remain in control after administrating the medicine are recorded as follows: 10, 9, 8, 12, 11, 13, 9, 10, 7, 8. Which of the following is the correct command to obtain the harmonic mean of this data in R? ***1 point***

○ length(c(10,9,8,12,11,13,9,10,7,8))/mean(1/c(10,9,8,12,11,13,9,10,7,8))
○ length(c(10,9,8,12,11,13,9,10,7,8))/(1/mean(c(10,9,8,12,11,13,9,10,7,8)))
○ 1/mean(1/(10,9,8,12,11,13,9,10,7,8))
○ 1/mean(1/c(10,9,8,12,11,13,9,10,7,8))

No, the answer is incorrect.
Score: 0

Accepted Answers:
1/mean(1/c(10,9,8,12,11,13,9,10,7,8))

7) Suppose the number of fishes caught from 10 ponds are recorded as follows and two observations are missing: 330, 238, 368, NA, 245, 259, 345, NA, 427, 430. Which of the following is the correct command to obtain the range of this data in R: ***1 point***

○ range(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)
○ maximum(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE) - minimum(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)
○ max(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)-min(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)
○ max[c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE]-min[c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE]

No, the answer is incorrect.
Score: 0

Accepted Answers:
max(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)-min(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430), na.rm=TRUE)

8) Suppose the number of fishes caught from 10 ponds are recorded as follows and two observations are missing: 330, 238, 368, NA, 245, 259, 345, NA, 427, 430. Which of the following is the correct command to obtain the interquartile range of this data in R? ***1 point***

○ IQRange(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE)
○ QR(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE)
○ IQR[c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE]
○ IQR(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE)

No, the answer is incorrect.
Score: 0

Accepted Answers:
IQR(c(330, 238, 368, NA, 245, 259, 345, NA, 427, 430),na.rm=TRUE)

9) *Questions 9 and 11 are based on the following data set.* ***1 point***

*A hospital has 15 rooms and each room has 10 patients admitted. A puzzle for the mental exercise was given to all the patients in every room. The time (in minutes) taken to complete the puzzle was recorded as follows and stored in a data vector as **puzzletime**.*

8, 13, 21, 9, 15, 29, 6, 13, 24, 27, 3, 22, 21, 20, 21, 20, 8, 27, 10, 17, 9, 7, 13, 15, 14, 23, 11, 20, 12, 21, 11, 27, 29, 3, 6, 6, 18, 8, 17, 6, 5, 11, 24, 22, 19, 20, 22, 21, 8, 20, 17, 28, 13, 4, 7, 24, 23, 16, 19, 29, 16, 20, 21, 23, 8, 1, 11, 16, 9, 16, 13, 10, 17, 18, 28, 10, 23, 27, 16, 8, 14, 9, 9, 18, 14, 21, 28, 16, 20, 11, 26, 7, 5, 25, 29, 27, 17, 24, 23, 27, 13, 3, 7, 27, 28, 18, 7, 9, 13, 9, 5, 27, 26, 27, 9, 4, 7, 10, 19, 19, 13, 9, 20, 16, 27, 20, 3, 26, 23, 11, 28, 21, 5, 19, 11, 18, 12, 22, 9, 11, 5, 28, 3, 12, 9, 11, 8, 17, 6, 11

What is the outcome of the following R commands?

```
modetab = table(as.vector(puzzletime))
names(modetab)[modetab == max(modetab)]
```

○ [1] "9"
○ [1] "10"
○ [1] "11"
○ Error

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] "9"

10) what is the 3rd quartile of the data in puzzletime? ***1 point***

○ 9.00
○ 16.00
○ 21.75
○ 29.00

No, the answer is incorrect.
Score: 0

Accepted Answers:
21.75

11) What is the 73rd quantile of the data in puzzletime? ***1 point***

○ 9.00
○ 21.00
○ 21.75
○ 29.00

No, the answer is incorrect.
Score: 0

Accepted Answers:
21.00

12) *Questions 12 to 20 are based on the following data set.* ***1 point***

Following are the scores of 250 students in a test with minimum and maximum marks being 0 and 100 respectively. The scores are stored in a data vector scores.

99.86, 42.72, 3.66, 66.89, 96.60, 30.08, 49.50, 16.84, 89.14, 14.97, 66.86, 38.32, 71.90, 9.50, 66.92, 58.83, 38.06, 79.95, 95.30, 97.51, 49.67, 50.54, 93.64, 74.30, 76.82, 63.32, 36.54, 90.87, 72.37, 61.98, 89.44, 98.19, 27.07, 63.97, 55.35, 92.40, 32.97, 61.37, 34.40, 42.48, 77.67, 99.31, 54.64, 69.46, 49.88, 86.76, 31.95, 4.55, 36.77, 36.91, 56.45, 54.44, 76.53, 15.97, 18.22, 41.34, 50.17, 18.82, 96.60, 93.58, 8.85, 30.27, 44.18, 26.85, 54.82, 64.24, 46.20, 3.00, 96.14, 10.01, 75.64, 93.18, 93.32, 15.88, 84.66, 21.08, 13.76, 75.89, 68.41, 51.36, 21.58, 13.85, 82.75, 71.88, 57.93, 6.68, 24.99, 10.24, 24.60, 95.14, 37.91, 97.11, 66.32, 87.91, 85.58, 64.32, 16.11, 37.22, 42.69, 89.64, 89.96, 48.29, 27.71, 89.71, 23.08, 53.02, 4.22, 18.84, 17.41, 73.05, 33.26, 71.83, 8.28, 69.65, 51.27, 75.61, 63.67, 8.24, 1.15, 83.05, 23.08, 26.37, 19.74, 34.79, 53.58, 66.88, 99.58, 63.30, 60.82, 43.71, 39.76, 54.97, 13.55, 81.42, 26.04, 2.18, 69.18, 36.76, 67.77, 40.94, 37.88, 6.44, 24.03, 31.21, 44.02, 50.53, 1.29, 78.89, 78.18, 41.64, 13.12, 60.07, 37.38, 7.18, 38.98, 75.08, 17.65, 11.13, 19.43, 44.85, 63.36, 68.78, 91.34, 71.68, 90.47, 82.64, 15.24, 24.96, 14.07, 1.79, 35.54, 62.56, 76.10, 7.22, 96.00, 49.04, 93.72, 41.35, 6.35, 31.58, 14.91, 46.10, 48.83, 25.15, 15.98, 18.06, 54.47, 88.50, 87.06, 16.53, 47.53, 46.51, 68.91, 28.35, 68.89, 93.41, 21.07, 25.42, 93.02, 94.64, 93.94, 9.75, 89.52, 1.20, 34.41, 65.48, 58.09, 32.27, 55.53, 22.79, 5.41, 87.13, 52.83, 14.59, 17.07, 29.37, 94.04, 24.53, 62.59, 58.07, 83.71, 86.55, 23.05, 34.52, 35.22, 50.84, 71.60, 27.66, 5.29, 72.83, 34.59, 68.72, 6.51, 29.91, 40.08, 45.36, 16.20, 1.91, 22.10, 86.63, 44.83, 6.13, 93.60, 73.23, 2.01, 5.79, 72.59, 94.20, 1.20, 91.42

The arithmetic mean of the data on `scores` is

○ 44.385
○ 49.208
○ 50.746
○ 58.614

No, the answer is incorrect.
Score: 0

Accepted Answers:
49.208

13) The median of the data on `scores` is ***1 point***

○ 44.85
○ 48.56
○ 50.75
○ 58.61

No, the answer is incorrect.
Score: 0

Accepted Answers:
48.56

14) The 25% and 75% quantiles of the data on `scores` are ***1 point***

○ 1.1500 and 48.5600 respectively.
○ 23.3175 and 99.8600 respectively.
○ 23.3175 and 72.9950 respectively.
○ 1.1500 and 99.8600 respectively.

No, the answer is incorrect.
Score: 0

Accepted Answers:
23.3175 and 72.9950 respectively.

15) The 4th and 8th deciles of the data on `scores` are ***1 point***

○ 27.695 and 68.896 respectively
○ 37.680 and 79.102 respectively
○ 27.695 and 79.102 respectively
○ 37.680 and 68.896 respectively

No, the answer is incorrect.
Score: 0

Accepted Answers:
37.680 and 79.102 respectively

16) The 32th and 83th percentiles of the data on `scores` are ***1 point***

○ 30.2092 and 85.2764 respectively
○ 8.978 and 10.532 respectively
○ 11.822 and 12.072 respectively
○ 12.072 and 13.185 respectively

No, the answer is incorrect.
Score: 0

Accepted Answers:
30.2092 and 85.2764 respectively

17) An examination declares a candidate to be admitted if the marks obtained are in the top 20 percentile. Following four candidates obtained following scores. Candidate 1: 73, Candidate 2: 85, Candidate 3: 80, and Candidate 4: 78. Which of them will appear in the examination. ***1 point***

○ Candidates 1, 2, 3 and 4.
○ Candidates 2,3 and 4.
○ Candidates 2 and 3.
○ Candidates 3 and 4.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Candidates 2 and 3.

18) The harmonic mean of the data on `scores` is ***1 point***

○ 17.42336
○ 34.402
○ 48.56
○ 49.208

No, the answer is incorrect.
Score: 0

Accepted Answers:
17.42336

19) The range of the values of data on `scores` is ***1 point***

○ (1.15, 99.86)
○ (99.86, 1.15)
○ -98.71
○ 98.71

No, the answer is incorrect.
Score: 0

Accepted Answers:
98.71

20) The interquartile range and quartile deviation of the values of data on `scores` ***1 point***

○ 1.15 and 99.86 respectively
○ 99.86 and 1.15 respectively
○ 49.6775 and 24.83875 respectively
○ 24.83875 and 49.6775 respectively

No, the answer is incorrect.
Score: 0

Accepted Answers:
49.6775 and 24.83875 respectively