POLS 6331: Homework 4 Answers

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Note

Following are the homework 4 answers as calculated in R Programming Language for Statistics.

If there are any questions, please send me an email at tlhanna@uh.edu with POLS6331 (all caps, no spaces) in the subject line. I also hold weekly Zoom office hours from 2 PM to 3:30 PM Tuesday and Wednesday.

```
library(here)
```

```
## Warning: package 'here' was built under R version 4.0.3
```

```
## here() starts at C:/Users/tomha/Documents/3 - R Studio Projects/Teaching/POLS3361-Spring2021
```

```
#Part 1
meana <- 22.8
sda <- 1.1

#question 1
percentile24 <- pnorm(24,meana,sda); percentile24
```

```
## [1] 0.8623436
```

```
#question 2
coveragea <- pnorm(26,meana,sda) - pnorm(20,meana,sda); coveragea
```

```
## [1] 0.9927308
```

```
#question 3
q1a <- qnorm(0.25,meana,sda); q1a
```

```
## [1] 22.05806
```

```
q3a <- qnorm(0.75,meana,sda);q3a
```

```
## [1] 23.54194
```

```r
#question 4
iqra <- q3a - q1a; iqra
```

```
## [1] 1.483877
```

```r
outliera <- 1.5*iqra; outliera
```

```
## [1] 2.225816
```

```r
xla <- q3a + outliera; xla
```

```
## [1] 25.76775
```

```r
##Part 2

satmean <- 1060
satsd <- 210
actmean <- 21.0
actsd <- 5.4

#question 5
mattz <- (33 - actmean)/actsd;mattz
```

```
## [1] 2.222222
```

```r
mattpercentile <- pnorm(33,actmean,actsd);mattpercentile
```

```
## [1] 0.9868659
```

```r
#question 6
chrisz <- (1310 - satmean)/satsd;chrisz
```

```
## [1] 1.190476
```

```r
chrispercentile <- pnorm(1310,satmean,satsd);chrispercentile
```

```
## [1] 0.8830704
```

```r
#In questions 7 and 8, note that I used the R function pnorm to compute
#the answer and did not solve directly using the Z-score. If you need help with
#that, send me an email or attend office hours.

#question 7
mattsat <- qnorm(mattpercentile,satmean,satsd);mattsat
```

```
## [1] 1526.667
```

```r
mattsatcheck <- pnorm(mattsat,satmean,satsd);mattsatcheck
```

```
## [1] 0.9868659
```

```r
#question 8
chrisact <- qnorm(chrispercentile,actmean,actsd);chrisact
```

```
## [1] 27.42857
```

```r
chrisactcheck <- pnorm(chrisact,actmean,actsd);chrisactcheck
```

```
## [1] 0.8830704
```

```r
#Part 3
pchipmean <- 9.12
pchipsd <- .14

#question 9
pchip9ozperc <- pnorm(9,pchipmean,pchipsd);pchip9ozperc
```

```
## [1] 0.195683
```

```r
1- pchip9ozperc
```

```
## [1] 0.804317
```

```r
#question 10 x = pchipmean + z*pchipsd
z <- c(-2,-1,0.5,1.5)
x <- z*pchipsd + pchipmean; x
```

```
## [1] 8.84 8.98 9.19 9.33
```