Homework 5

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Question a

```
## $quantiles
##      0.5
## AGEA  43
##
## $CIs
## , , AGEA
##
##        0.5
## (lower  41
## upper)  45
```

The estimated population median age is 43 and 95% confidence interval is (41,45).

Question b

```
## $quantiles
##      0.5
## AGEA  40
##
## $CIs
## , , AGEA
##
##        0.5
## (lower  37
## upper)  43
```

```
## $quantiles
##      0.5
## AGEA  45
##
## $CIs
## , , AGEA
##
##             0.5
## (lower 43.00000
## upper) 47.18563
```

The median among males is 40 with 95% confidence interval (37,43) and the median among females is 45 with 95% confidence interval (43.000,47.186).

```
knitr::opts_chunk$set(echo = FALSE)
library(survey)
library(tidyverse)
```

```r
library(ggplot2)
data1 = read.csv("./ess6.csv") %>%
  mutate(psu = as.factor(psu))
design = svydesign(id = ~psu, strata = ~stratify, weights = ~PSPWGHT, data = data1)
design_median = svyquantile(~AGEA, design, quantiles = 0.5, ci = TRUE, na.rm = TRUE)
design_median
sub1 = subset(design, GNDR==1)
liner_male = svyquantile(~AGEA, sub1, quantiles = 0.5, ci = TRUE, na.rm = TRUE)
liner_male
sub2 = subset(design, GNDR==2)
liner_female = svyquantile(~AGEA, sub2, quantiles = 0.5, ci = TRUE, na.rm = TRUE)
liner_female
```