1. Calculate 2.4−1.96∗0.71√82

```
> 2.4-1.96*0.71/sqrt(82)
[1] 2.246323
```

Answer: $2.4 - 1.96 * 0.71/\sqrt{82} = 2.246323$

2. Import a data file called "student" It has 10 variables (see Titanium).

(a) Save the file (see titanium) in your computer.

(b) **Import** the data file into RStudio.

(c) Type `attach(student)` to attach the data.

(d) Type `head(student)` in the command window

```
> attach(student)
> head(student)
  GENDER AGE WORKHR TATTOO SHOES
1 FEMALE  18     20     NO    23
2 FEMALE  18     16     NO    12
3 FEMALE  18     20     NO     3
4 FEMALE  18     20     NO     6
5 FEMALE  18     16     NO    41
6 FEMALE  18     12     NO     9
  EXERCISE  GPA     CLASS CARAGE
1        5 2.90  FRESHMAN      1
2        3 3.90  FRESHMAN      2
3        2 3.60 SOPHOMORE     16
4        2 3.81  FRESHMAN      7
5        0 3.40  FRESHMAN     14
6        0 3.30 SOPHOMORE      7
  MARRIED
1      NO
2      NO
3      NO
4      NO
5      NO
6      NO
```

3. Create a **frequency table (1 variable)**

(a) Create a table for the variable `GENDER` by typing `table(GENDER)`

(b) Create a table for the variable `MARRIED` by typing `table(MARRIED)`

(c) How many female and male students are there?

(d) How many students are married?

(e) How many students have tattoos?

```
> table(GENDER)
GENDER
FEMALE   MALE
   264    191

> table(MARRIED)
MARRIED
 NO YES
393  62

> table(TATTOO)
TATTOO
 NO YES
356  99
```

Answer:

(3c)	# Female students	:	264
	# Male students	:	191
(3d)	# Students are married	:	62
(3e)	# Students have tattoos	:	99

4. Create a **contingency table (2 variables)**.

(a) Create a table using two variables `CLASS` and `GENDER` typing `table(CLASS, GENDER)`

(b) Create a table using two variables `GENDER` and `MARRIED` typing `table(GENDER, MARRIED)`

(c) How many female freshmen and male freshmen are there?

(d) How many married female students? How many unmarried male students?

(e) How many married freshmen are there? How many married seniors are there?

```
> table(CLASS, GENDER)
            GENDER
CLASS        FEMALE MALE
  FRESHMAN       68   44
  JUNIOR         63   56
  SENIOR         34   18
  SOPHOMORE      99   73

> table(GENDER, MARRIED)
         MARRIED
GENDER     NO YES
  FEMALE  228  36
  MALE    165  26

> table(CLASS, MARRIED)
            MARRIED
CLASS         NO YES
  FRESHMAN   102  10
  JUNIOR     104  15
  SENIOR      33  19
  SOPHOMORE  154  18
```

Answer:

(4c)	# Female freshmen	:	68
	# Male freshmen	:	44
(4d)	# Married female students	:	36
	# Unmarried male students	:	165
(4e)	# Married freshmen	:	10
	# Married senior	:	19

5. Create a **contingency table (3 variables)**.

(a) Create a table of `CLASS` by `MARRIED` for each `GENDER` by typing `table(CLASS, MARRIED, GENDER)`

(b) How many unmarried male sophomore are there? Married female seniors?

```
> table(CLASS, MARRIED, GENDER)
, , GENDER = FEMALE

           MARRIED
CLASS       NO YES
  FRESHMAN  60   8
  JUNIOR    55   8
  SENIOR    22  12
  SOPHOMORE 91   8

, , GENDER = MALE

           MARRIED
CLASS       NO YES
  FRESHMAN  42   2
  JUNIOR    49   7
  SENIOR    11   7
  SOPHOMORE 63  10
```

Answer:

(5b) # Unmarried male sophomore : 63

Married female seniors : 12

6. Summary Statistics.

(a) Calculate the mean GPA (or average GPA) by typing `mean(GPA)`

(b) Calculate the average weekly work hour by typing `mean(WORKHR)`,

(c) Calculate the median GPA by typing `median(GPA)`

(d) Calculate the median weekly work hour by typing `median(WORKHR)`

(e) What is the average GPA? Average weekly work hour?

(f) What is the median GPA? Median weekly work hour?

(g) What is the average car age? Average exercise hour?

```
> mean(GPA)
[1] 3.051692

> mean(WORKHR)
[1] 24.89451

> median(GPA)
[1] 3

> median(WORKHR)
[1] 25

> mean(CARAGE)
[1] 6.956044

> mean(EXERCISE)
[1] 4.36044
```

Answer:

(6e)	Average GPA	:	3.051692
	Average weekly work hour	:	24.89451
(6f)	median GPA	:	3
	Median weekly work hour	:	25
(6g)	average car age	:	6.956044
	Average exercise hour?	:	4.36044