Quiz 4

Name:

1.–4.

You will be using the `worldcup` dataframe for some of the questions. As a reminder, here's what that looks like:

```
library(faraway)
data(worldcup)
head(worldcup)
```

```
##                Team   Position Time Shots Passes Tackles Saves
## Abdoun      Algeria Midfielder   16     0      6       0     0
## Abe           Japan Midfielder  351     0    101      14     0
## Abidal       France   Defender  180     0     91       6     0
## Abou Diaby   France Midfielder  270     1    111       5     0
## Aboubakar  Cameroon    Forward   46     2     16       0     0
## Abreu       Uruguay    Forward   72     0     15       0     0
```

What would the head of the dataframe look like after each step of `dplyr` functions? Match the starts of the dataframes given in the numbered answers to the letter given in the comments following each line of the chained command:

```
my_df <- select(worldcup, Time, Passes, Tackles, Saves) %>%  # a.
        summarize(Time = mean(Time),
                  Passes = mean(Passes),
                  Tackles = mean(Tackles),
                  Saves = mean(Saves)) %>%  # b.
        gather(var, mean) %>%  # c.
        mutate(mean = round(mean, 1))  # d.
```

1.

```
##       var        mean
## 1    Time 208.8638655
## 2  Passes  84.5210084
## 3 Tackles   4.1915966
## 4   Saves   0.6672269
```

2.

```
##            Time Passes Tackles Saves
## Abdoun       16      6       0     0
## Abe         351    101      14     0
## Abidal      180     91       6     0
## Abou Diaby  270    111       5     0
## Aboubakar    46     16       0     0
## Abreu        72     15       0     0
```

3.

```
##       var  mean
## 1    Time 208.9
## 2  Passes  84.5
## 3 Tackles   4.2
## 4   Saves   0.7
```

4.

```
##       Time   Passes  Tackles     Saves
## 1 208.8639 84.52101 4.191597 0.6672269
```

Answers: 1. c., 2. a., 3. d., 4. b.

5.

You run the following code:

```
i <- c(1, 3:4)
j <- 2

worldcup[j, i]
```

What will you get?

a. Algeria, France, France
b. Midfielder, Defender, Midfielder
c. Japan, 351, 0
d. Midfielder

Answer: c Explanation: This is the same as running `worldcup[2, c(1, 3:4)]`. R will look for the definitions of `i` and `j` and put this into the indexing. Therefore, this is calling for the second row, first, third, and fourth columns.

6.

You run the following code:

```
vars <- c("Time", "Shots", "Passes", "Tackles", "Saves")
i <- 3

var_mean <- mean(worldcup[ , vars[i]])
var_mean
```

What will you get? (Hint: you may want to use some of the output shown in Questions 1–4 to help figure this out.)

a. 2.3042017
b. 84.5210084
c. 208.8638655

d. 0.6672269

Answer: b Explanation: Since `i` is defined as 3, `vars[i]` tells R to find the 3rd element of the `vars` vector, which is "Passes". `worldcup[ , vars[i]]` therefore pulls the "Passes" column of `worldcup`. The `mean` function takes the mean of that, which you can see from the output of questions 1–4 is 84.5210084.

7.–10.

These questions plot data from another dataset in the `faraway` library, `hsb`. This includes data on the academic program choice of high school students. You can find out more using `?hsb`.

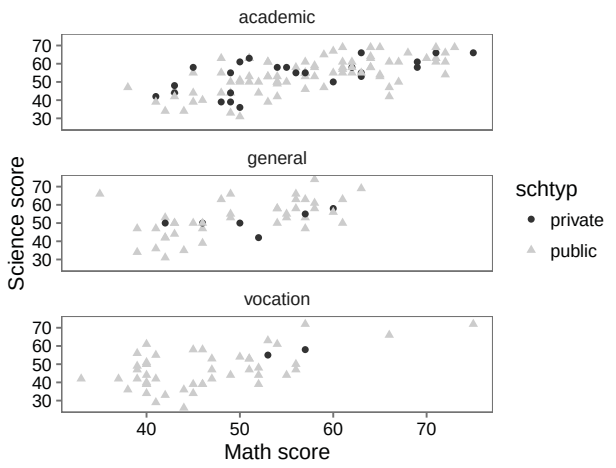
```
data(hsb)
head(hsb, 3)
```

```
##    id gender  race    ses schtyp     prog read write math science socst
## 1  70   male white    low public  general   57    52   41      47    57
## 2 121 female white middle public vocation   68    59   53      63    61
## 3  86   male white   high public  general   44    33   54      58    31
```

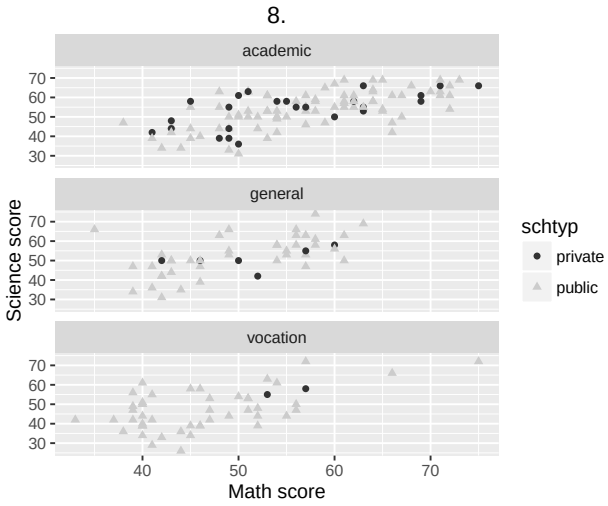
Match up the graphs given by each number below with the letter following lines of code in the `ggplot` call. You should match each letter with the graph you would get if you ran *up to and including* the line of code the letter appears on, minus the `+` at the end of the line.

```
ggplot(hsb, aes(x = math, y = science)) +
        geom_point(aes(shape = schtyp, color = schtyp)) +
        scale_color_grey() +  # a.
        facet_wrap(~ prog, ncol = 1) +  # b.
        xlab("Math score") + ylab("Science score") +  # c.
        theme_few()  # d.
```

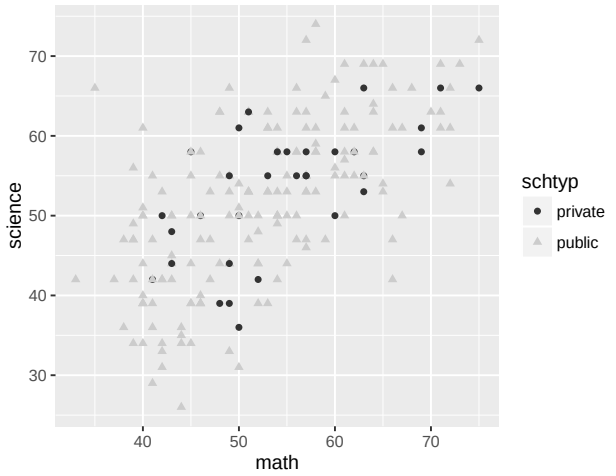
7.



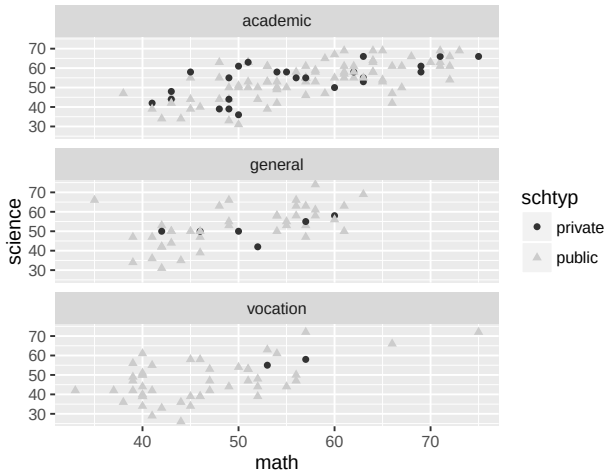
8.



9.



10.



Answers: 7. d., 8. c., 9. a., 10. b.