

Solutions

1. What are the mean unemployment rates for the time period shown?

- A 15.6 for males and 12.2 for females
- B 17.5 for males and 12.3 for females
- C 19.8 for males and 13.25 for females
- D 14.9 for males and 11.6 for females

B

The contingency table shows the unemployment rate for non-student youths aged 15 to 24.

Year	Male Unemployment Rate (%)	Female Unemployment Rate (%)
2008	14.9	11.3
2009	19.8	11.6
2010	19.8	13.2
2011	15.6	12.2
2012	17.5	13.3

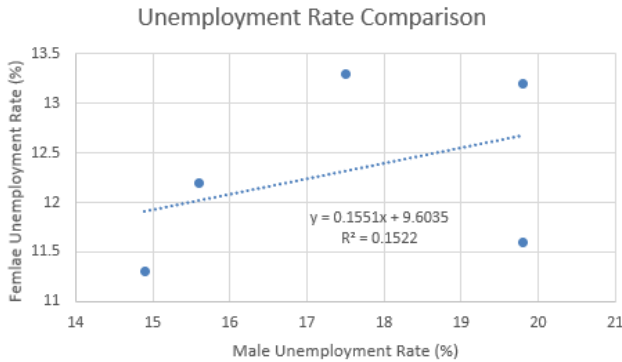
$$\begin{aligned} \text{Mean}_M &= (14.9 + 19.8 + 19.8 + 15.6 + 17.5) \div 5 \\ &= 87.6 \div 5 \\ &= 17.52\% \end{aligned}$$

$$\begin{aligned} \text{Mean}_F &= (11.3 + 11.6 + 13.2 + 12.2 + 13.3) \div 5 \\ &= 61.6 \div 5 \\ &= 12.32\% \end{aligned}$$

2. Which of the following characterizes the linear correlation between male and female unemployment rates?

- A strong positive
- B strong negative
- C moderate positive
- D moderate negative

C



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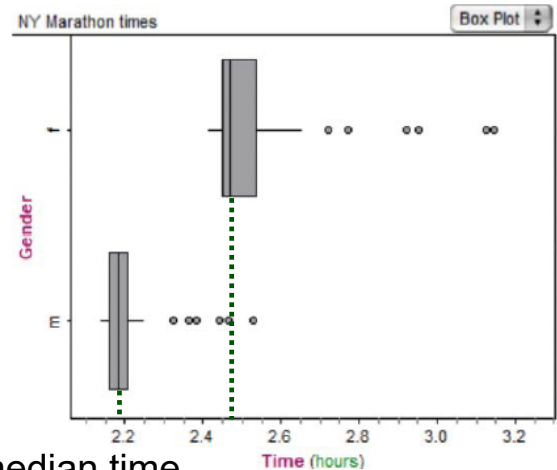
There is an r^2 value of 0.1522 which gives an r-value of 0.390 which is a moderate, positive linear correlation.

3. Which of the following statements is true?

- A The fastest female time is about 2.5 hours and the fastest male time is about 3.2 hours.
- B The mean male winning time is about 2.2 hours and the mean female time is about 2.5 hours.
- C The median male winning time is about 0.3 hours faster than the median female time.
- D None of the above is true.

C

The graph shows the winning times for the New York Marathon from 1970–1999.



The line within the box represents the median time.

The female median is about 2.475 hours, the male median is about 2.175 hours.

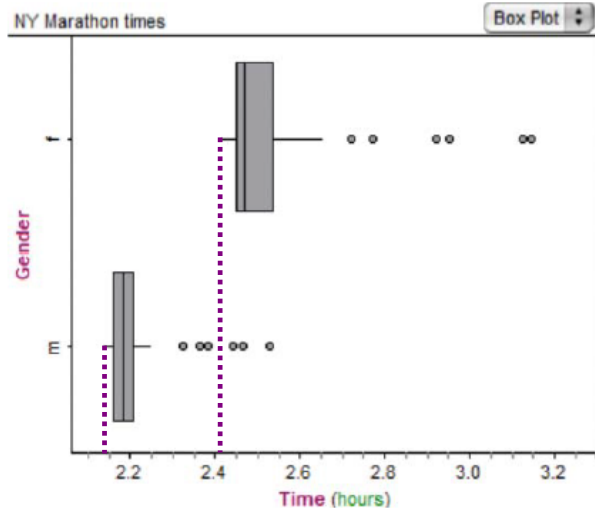
4. What are the fastest winning times shown for males and females?

The fastest winning times are at the end of the lines going from the box to the left.

$$t_M = 2.14 \text{ hours}$$

$$t_F = 2.41 \text{ hours}$$

The graph shows the winning times for the New York Marathon from 1970–1999.



12. The table provides preparation and performance data for a number of students at a driving school.

- a) Use tools and strategies from this section to compare the average number of hours studied and written test score for males and females.
- b) Compare the performance of the two gender groups.
- c) Repeat the analysis for average number of road hours and road test score for both genders.

Create a PIVOT TABLE - Follow the instructions for Method 2 on Page 426

Gender	Study Hours	Road Hours	Road Test (%)	Written Test (%)
M	4	9	95	80
M	6	8	90	70
F	6	5	80	75
F	7	6	85	80
F	8	5	85	95
F	7	7	85	85
M	5	8	85	80
M	4	6	70	75
F	8	7	85	90
M	3	8	90	75
M	5	7	80	85
F	9	4	75	70
M	2	5	80	85
F	8	7	85	80
M	4	9	95	90
F	7	9	95	90
Row Labels	Average of Study Hours	Average of Road Hours	Average of Road Test (%)	Average of Written Test (%)
F	7.50	6.25	84.38	83.13
M	4.13	7.50	85.63	80.00
Grand Total	5.81	6.88	85.00	81.56

- a) Using a Pivot Table we can calculate the averages for each of the four attributes by gender as well as by total.
- b) The table shows that females had higher mean study hours of 7.5 compared to a mean of 4.13 for males. The written test scores were also higher for females, with a mean of 83.13% compared to a mean of 80% for males.
- c) The table shows that females had lower mean road hours of 6.25 compared to a mean of 7.5 for males. The road test scores for females were also lower, with a mean of 84.38% compared to a mean of 85.63% for males.