Unit 8:   Two-Variable Statistics Test Review

The table below (look for the data on number 4) shows the actual data from the results of the Women's 200-Meter Dash at the Summer Olympic Games from 1948-2004.

1.   Find the line-of-best-fit.   Round to the nearest hundredth.

2.   Interpret the slope and y-intercept using complete sentences.

3.State the correlation coefficient and describe the correlation.   r = _____

4.   Use the line-of-best-fit to find the predicted winning times (rounding to the nearest hundredth), then calculate the residuals.   Let x = number of years after 1948

Year	Time (seconds)	Predicted Time	Residuals
1948	24.40		
1952	23.89		
1956	23.55		
1960	24.13		
1964	23.05		
1968	22.58		
1972	22.40		
1976	22.37		
1980	22.03		
1984	21.81		
1988	21.34		
1992	21.81		
1996	22.12		
2000	21.84		
2004	22.05		

5.   Using your residual calculations, create a residual plot.
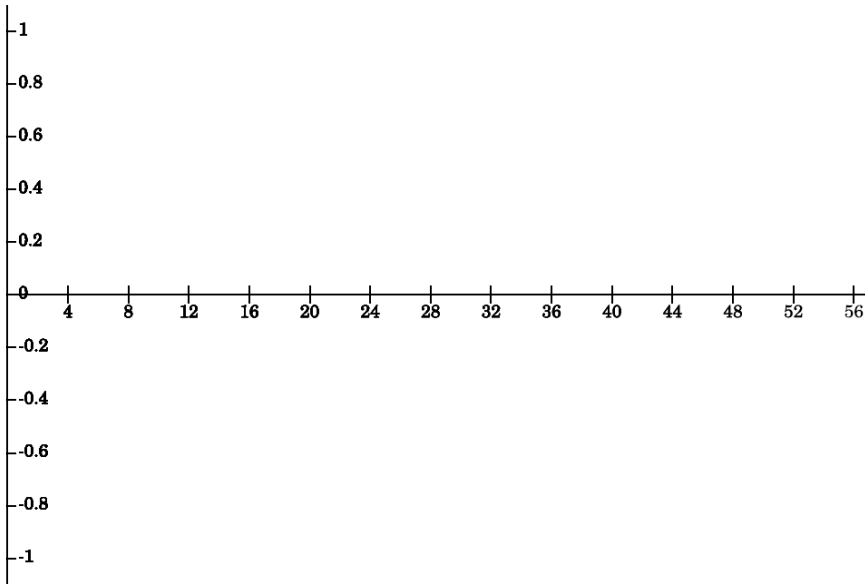
6.   Based on the shape of the scatterplot and the residual plot, do you feel that the linear model is best?   Why or why not?   Use your knowledge of the shapes of scatterplots and residual plots to support your answer.

Use the following Venn diagram for questions 7 – 13.

7. The Venn Diagram above shows a number of students who exercise two different ways. Use the data from the diagram to complete a two way frequency table.

8. Create a two-way relative frequency table by row, column, and overall total (based off information from number 7). Round each percent to the nearest hundredth.

Relative Frequency table by row

Relative Frequency table by column

Relative Frequency table by overall total

Answer the following questions based on the two way frequency table and two way relative frequency tables.

9. What is the probability that a student both jogs and does aerobics?

10. Based on the information in the table, which of the following is true?
   A. A larger percentage prefer to do neither activity than those who prefer both activities
   B. 50 students total were asked which work out activity they prefer
   C. 25% of the students prefer both activities
   D. 58% of the students do prefer aerobics

11. Given that a student prefers jogging, what is the probability they do not enjoy aerobics?

12. Describe the joint frequencies using complete sentences.

13. Given that a student does not prefer aerobics, what is the probability they do not enjoy jogging as well?

14. The following table shows how some students get their news. Fill in the missing values

	TV	Internet	Total
7th grade	13		62
8th grade		68	
Total	33		

15. How many students were surveyed?

16. Do a higher percentage of 7th graders or 8th graders get their news from the Internet? Justify your response.

17. How many more 8th graders preferred Internet over TV?

18. What percent of those surveyed were 7th graders?

A university club rowing team has 50 members. Each member was asked whether they prefer practice on Friday or Saturday morning. The results are shown in the relative frequency table below.

Age	Friday	Saturday	Total
18-20	0.30	0.12	0.42
21-23	0.40	0.18	0.58
Total	0.70	0.30	1.00

19. Label each student as True or False based on the information in the table.
    a. 40 members of the club are 21-23 and prefer practice on Friday

    b. Overall, 20 more people prefer practice on Friday than Saturday

    c. Six people who are 18-20 would like practice on Saturday

    d. 30% of the club prefer practice on Friday

20. Determine if the following headlines describe CORRELATION or CAUSATION.

a. Facebook use causes declines in grades of middle school students.

b. Poor self esteem lowers test performance in elementary school students

c. Gambling linked to alcoholism

d. Increase in number of after school activities helps teen crime