

Name _____

Date _____

Fast Freddy's Statistics Worksheet

Year	Speed (mph)						
1912	78.72	1932	104.144	1952	128.922	1972	162.962
1914	82.47	1934	104.863	1954	130.840	1974	158.589
1916	84.00	1936	109.069	1956	128.490	1976	148.725
1918	86.12	1938	117.200	1958	133.791	1978	161.363
1920	88.62	1940	114.277	1960	138.767	1980	142.862
1922	94.48	1942	114.310	1962	140.293	1982	162.029
1924	98.23	1944	114.625	1964	147.350	1984	163.621
1926	95.90	1946	114.820	1966	144.317	1986	170.722
1928	99.48	1948	119.814	1968	152.882	1988	144.809
1930	100.448	1950	124.002	1970	155.749	1990	185.984

1. Think of the data above as a set of ordered pairs where the year stands for the x-coordinate and the speed stands for the y-coordinate. The first ordered pair is (1912, 78.72). Graph all of the ordered pairs on a grid.
2. All of the points on your graph do not lie on the same line. However, draw a single straight line that you think "best" represents the data. This line is called the "line of best fit." The number of points above your line of best fit should be about the same as the number of points below the line.
3. From your line of best fit, predict the average winning speed for 1977. This process is called "interpolation."
4. Extend your line of best fit to predict the average winning speed for 1995. This process is called "extrapolation."
5. Find ordered pairs assigned to two points on your line of best fit. Use these two ordered pairs to find the equation of your line of best fit in slope-intercept form.
6. You can use the equation you obtained in Exercise 5 to predict average winning speeds in the future. Use your equation to predict the average winning speed in the year 2002.

Fast Freddy's Answer Sheet

1. Think of the data above as a set of ordered pairs where the year stands for the x-coordinate and the speed stands for the y-coordinate. The first ordered pair is (1912, 78.72). Graph all of the ordered pairs on a grid.

SEE STUDENTS' WORK

2. All of the points on your graph do not lie on the same line. However, draw a single straight line that you think "best" represents the data. This line is called the "line of best fit." The number of points above your line of best fit should be about the same as the number of points below the line.

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3. From your line of best fit, predict the average winning speed for 1977. This process is called "interpolation."

About 160 mph

4. Extend your line of best fit to predict the average winning speed for 1995. This process is called "extrapolation."

About 182 mph

5. Find ordered pairs assigned to two points on your line of best fit. Use these two ordered pairs to find the equation of your line of best fit in slope-intercept form.

(1914, 82.5) and (1986, 171); $y = 1.3x - 2411$

6. You can use the equation you obtained in Exercise 5 to predict average winning speeds in the future. Use your equation to predict the average winning speed in the year 2002.

About 190 mph

Name _____
Date _____

Fast Freddy's Checklist

1. Did the student graph the ordered pairs on a grid?
 - a. All forty (25 points)
 - b. Thirty-five or more of the forty (20 points)
 - c. Thirty or more of the forty (15 points)
 - d. Twenty-five or more of the forty (10 points)
 - e. Twenty or more of the forty (5 points)

2. Did the student draw the line of best fit appropriately?
 - a. Number of points above and below the line were proportionate. (20 points)
 - b. Number of points above or below the line were slightly disproportionate. (15 points)
 - c. Number of points above or below the line were disproportionate. (10 points)
 - d. Points were in such a disarray that no line of best fit could be established. (5 points)

3. Did the student interpolate correctly?
 - a. Yes (20 points)
 - b. Interpolation was slightly incorrect but student did use line of best fit for prediction. (15 points)
 - c. Interpolation was incorrect because student did not use line of best fit correctly. (10 points)
 - d. Interpolation was incorrect because student was unable to read grid. (5 points)

4. Did the student extrapolate correctly?
 - a. Yes (20 points)
 - b. Extrapolation was slightly incorrect but student did extend line of best fit for prediction. (15 points)
 - c. Extrapolation was incorrect because student did not extend line of best fit correctly for prediction. (10 points)
 - d. Extrapolation was incorrect because student was unable to extend line of best fit. (5 points)

5. Did the student find the equation for the line of best fit?
- a. Yes (20 points)
 - b. Equation was slightly incorrect because of minor mathematical mistakes. (15 points)
 - c. Equation was incorrect because student chose incorrect ordered pairs. (10 points)
 - d. Equation was incorrect because student could not find any ordered pairs. (5 points)
6. Did the student predict the average winning speed in the year 2002?
- a. Yes (20 points)
 - b. Prediction was slightly incorrect because of minor mathematical mistakes. (15 points)
 - c. Prediction was incorrect because student used equation incorrectly. (10 points)
 - d. Prediction was incorrect because student was unable to use equation. (5 points)

Total Number of Points _____

- A 112 points and above
- B 100 points and above
- C 87 points and above
- D 75 points and above
- F 74 points and below

