

Tour de France



In the 2003 Tour de France, Lance Armstrong averaged 40.94 kilometers per hour (km/h) for the entire course, making it the fastest Tour de France in its history. In 2004, he made history again by winning the race for an unprecedented sixth time. In 2005, he became the only 7-time winner and once again set a new record for the fastest average speed. One hundred years ago, the fastest rider finished the course at an average speed of about 25.3 km/h (around 15.8 mph). In 2005, Lance Armstrong averaged 41.65 km/h (25.88 mph).

- 1) Make a scatterplot of *Avg Speed* against *Year*. Describe the relationship of *Avg Speed* by *Year*, being careful to point out any unusual features in the plot.
- 2) Find the regression equation of *Avg Speed* on *Year*.
- 3) Now find the regression of *Avg Speed* by *Year* for years from 1947 to the present. How is the scatterplot and the regression equation different from the entire data?
- 4) Interpret the slope of the regression from 1947 to the present.
- 5) In 1979 Bernard Hinault averaged 39.8 km/h, while in 2005 Lance Armstrong averaged 41.65 km/h. Which was the more remarkable performance and why?

For an in-depth view of the data on the Tour de France in its entire history, you will use the data to further interpret anything that interests you. You will develop a few questions and let the statistics you learned from August 12th to the present to answer those questions. Part of your analysis will show graphs, numerical summaries, and anything else you have learned. You will also ask a question that you are unable to answer now, but may by the end of AP Statistics in May. The more critical and analytical your questions and work, the more points you will earn.