

Sports Lab - Chapter 3

In example 2 of section 3.3, they predicted when the women's record time would equal the men's record time in the 400-meter run. In this lab, you will research a sporting event of your choice and use linear functions to model your data for the women's and men's versions of the event. The following websites may help you perform your research:

Track and Field Statistics

<http://www.saunalahti.fi/~sut/eng/>

Index to the Olympics

<http://www.hickoksports.com/history/olympix.shtml>

USA Swimming

<http://www.usaswimming.org/usasweb/DesktopDefault.aspx>

Respond to the following instructions and questions:

1. Include tables of the women's data and the men's data you collected. State the source of your data.
2. Define any variables you are using to model your data.
3. Draw sketches of scattergrams for the women's and men's data by hand in the same coordinate system. Make sure that it is clear which data points are for the women and which are for the men.
4. Find a linear function that models the women's data and a linear function that models the men's data. If you can't model your data well with linear functions, choose another sporting event.
5. Draw graphs of your functions in the same coordinate system as your scattergrams.
6. Compare the intercepts on the vertical axis for both of your linear models. What does your comparison mean in this situation?
7. Compare the slopes of your two linear models. What does your comparison mean in this situation?
8. Is there a point in time when your two models predict that the women's performance was or will be equal to the men's performance? If so, when did this or when will this happen?
9. Use your models to estimate when in the past or future the women's performance has been or will be better than the men's performance.