

Being able to make and use graphs is an important tool in science. On standardized tests, such as the PLAN, PSAT, and ACT, the science sections will provide data and graphs and ask questions about them. Using the data table provided, graph the data. Make sure all parts are labeled correctly, there is an appropriate title, and a key. Science uses certain conventions in data tables and graphs. The independent variable is the first column in a data table and goes on the x-axis. The last column is the dependent variable and goes on the y-axis. Use these conventions, always!

Table 1. Olympic Gold medal winning times in both men’s and women’s 100m Freestyle Swim

(Independent var.) Year	(Dependent var.) Men’s time (min:sec)	(Dependent var.) Women’s time (min:sec)
1896	1:22.2	
1904	1:02.8	
1908	1:05.6	
1912	1:03.4	1:22.2
1920	1:00.4	1:13.6
1924	59.0	1:12.4
1928	58.6	1:11.0
1932	58.2	1:06.8
1936	57.6	1:05.9
1948	57.3	1:06.3
1952	57.4	1:06.8
1956	55.4	1:02.0
1960	55.2	1:01.2
1964	53.4	59.5
1968	52.2	1:00.0
1972	51.22	58.59
1976	49.99	55.65
1980	50.40	54.79
1984	49.80	55.92
1988	48.63	54.93
1992	49.02	54.64
1996	48.74	54.50
2000	48.30	53.83
2004	48.17	53.84
2008	47.21	53.12

Draw a graph of both men’s and women’s winning times. The dependent variable axis should start at 45.0 and go up to 1:24.0. Make sure you account for all the years between 1896 and 2008. Draw a smooth curve that averages the data (not connect-

the-dots) to show a trend for each set of data. Answer the following questions:

1. In what year did the men beat the 50.00 second mark?
2. In what year did the women beat the 55.00 second mark?
3. Based on the curves, do you think the women will ever get to be as fast as the men? Why or why not?
4. Based on your graph, predict the approximate time for both men and women in 2012.
5. There were no Olympics in 1916. Based on your data and graphs, plot and label a point for both men and women illustrating what their times might have been that year. Write those times down here as well.
6. Read page 951 in your textbook. Predict the proportion of fast- vs. slow-twitch muscles in these swimmers. Why?