

# Learning Progress

According to the National Center for Education Statistics (NCES), both female and male students have improved in their abilities to learn mathematics since the 70's. Here are some NCES data on Average Proficiency Scores:

Year	Female			Male		
	Age 9	Age13	Age 17	Age 9	Age13	Age 17
1978	221	265	297	217	264	304
1986	222	268	299	222	270	305
1992	228	272	304	231	274	309

This is a small data set, and there is little to indicate which function type(s) one should use for projecting trends. For simplicity, use function(s) found by linear regression to answer the following:

1. At age 17, which sex is making more progress as measured by math Average Proficiency Scores? Justify your answer by reference to the appropriate parameter(s) of your linear model(s). \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Show your model(s) here:

2. In what year do(es) your model(s) predict the scores for seventeen-year-old males and females will be the same? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Show the calculations that led to your answers:

3. Again assuming linear modeling for your projection, what would be the Average Proficiency Score in mathematics for
  - a. a female, age 21 in 1992? \_\_\_\_\_
  - b. a male, age 21 in 1992? \_\_\_\_\_

Show the calculations that led to your answers:

4. On the back of this sheet or on a separate page, write a short explanation of an observation you can make and justify on the basis of your calculations above.