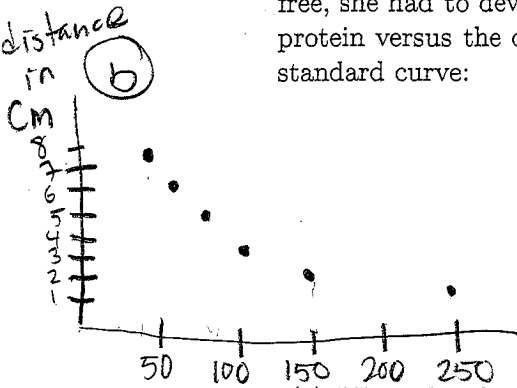


3.1

Name: _____

Worksheet 6

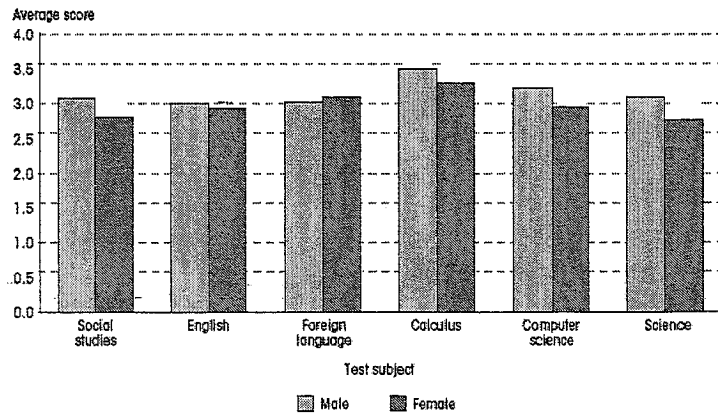
1. A biochemist was trying to determine the effectivity of a drug to isolate peripheral membrane proteins from cell membranes. To do this, she used gel electrophoresis to determine what proteins were free in the cells after treatment. In order to determine which proteins were free, she had to develop a standard curve (using control proteins) of the molecular weight of protein versus the distance they traveled in the gel. Below is the data she gathered for her standard curve:



Molecular weight, Da	distance traveled, cm
250000	2.4
150000	3.2
100000	4.2
75000	5.2
50000	6.6
37500	7.7

- (a) Write this data as sets of ordered pairs. $(250,000, 2.4), (150,000, 3.2), (100,000, 4.2), (75000, 5.2), (50000, 6.6), (37500, 7.7)$
- (b) Create a scatter diagram of the paired data. Be sure to label both your axes, and include units.
- (c) What trend does the data show? *As weight increases, distance decreases*
- (d) Suppose you are interested in finding the protein ankyrin, whose molecular weight is 160000 Daltons. Roughly where would you expect the protein to appear on the gel?

3.0cm

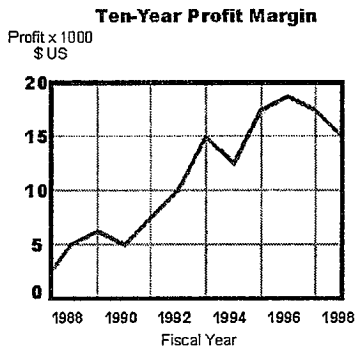


The diagram above shows the average score of students on AP exams in 2002, based on gender and subject.¹ Use the diagram to answer the following questions:

2. On average, which subject did females score highest in? What was their average score in this subject? *Calculus ~3.25*
3. On average, which subject did males score lowest in? What was their average score in this subject? *English 3.0*
4. On average, in which subject did females and males score most similarly? What were their average scores in this subject? *Foreign Language*

*Male: 3.0
Female: 3.1*

¹Source: National Center for Educational Statistics



The diagram above shows the profit margin of a fictional company. Use the diagram to answer the following questions:

5. What was the profit margin in 1990?
\$6000
6. When was the profit margin highest?
When was it lowest? Highest 1997
Lowest 1988
7. When was there the greatest change in profit margin?
1993 to 1994
8. When was the profit margin \$15000?
1993

For the following graphs, determine (a) the slope, (b) the x- and y-intercepts, and (c) the equation of the line:

