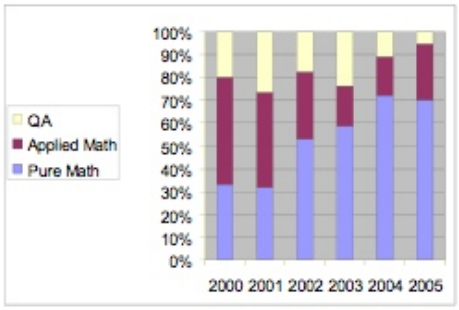
MA1020 Quantitative Literacy – Chapter 8 Quiz

Solutions

October 20, 2006

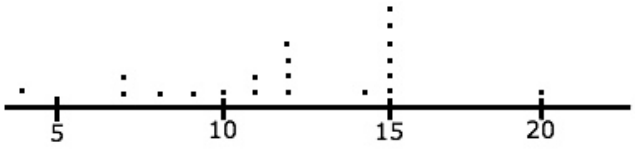
1. The following proportional bar graph shows the percentage of students per year in a mathematics department who are majoring in one of the three degree programs offered by the department: Pure Mathematics, Applied Mathematics, and Quantitative Analysis (QA).



What percentage of the department's majors was majoring Applied Math in the year 2005?

Solution. $95\% - 70\% = 25\%$. □

2. Consider the following dot plot for a 20-point lab assignment in a science class.



(a) What was the high score on the lab?
Solution. 20 □

(b) What was the most commonly occurring score?
Solution. 15 □

(c) How many labs were turned in?
Solution. 20 □

3. The scores for a test given to two different sections of a college algebra class were:

Section A	82, 83, 81, 79, 88, 91, 73, 89, 90, 88, 88, 87
Section B	67, 68, 92, 77, 91, 93, 78, 54, 82, 94, 100, 43, 77, 31

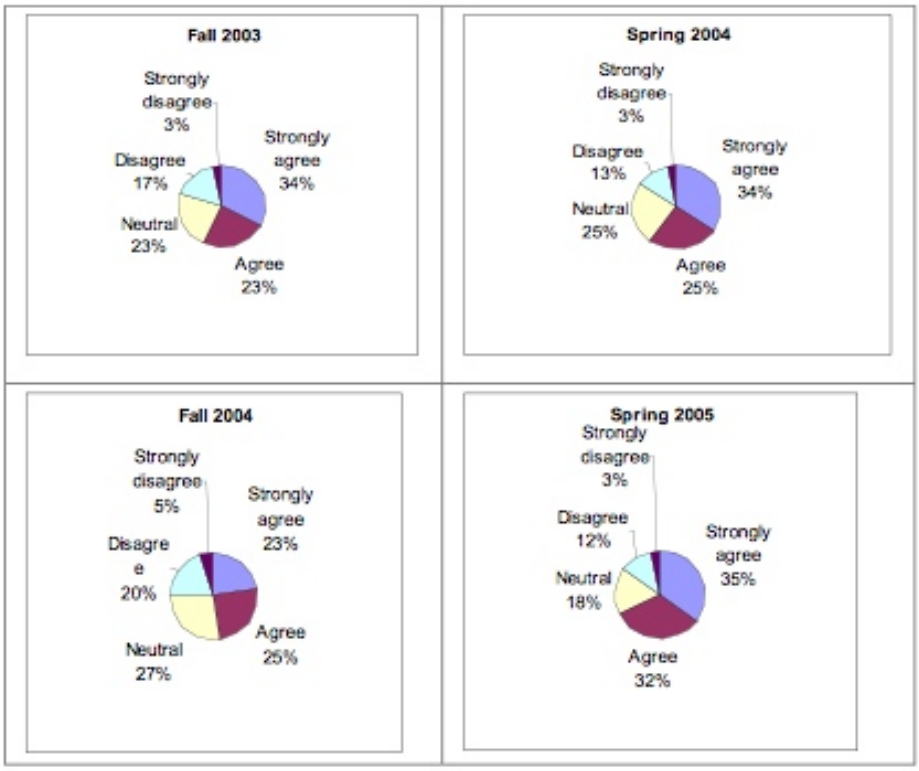
Create a double stem-and-leaf plot for these data, and compare the performances of the two sections.

Solution.

	10	0
1 0	9	1 2 3 4
9 8 8 8 7 3 2 1	8	2
9 3	7	7 7 8
	6	7 8
	5	4
	4	3
	3	1

Section A has many 80s and overall performs better. Section B has more 90s, but overall performed lower. □

4. Each semester, a professor gives out student evaluations which solicit responses from students. One item says: "My professor is prompt in returning graded work to me." Students are asked to reply by indicating: strongly disagree, disagree, neutral, agree, or strongly agree. The professor is up for a promotion this year, and wants to show that responses to this item have improved. He prepares the following multiple pie chart:



Discuss the changes in the student responses to this item over time, and assess whether these charts make a strong case for the professor's improvement.

Solution. Though the evaluations for Spring 2005 were the best, Fall 2005 was the worst. Therefore, there is definitely not a strong case for improvement. It is possible that there was improvement but in such a short amount of time, it cannot be concluded from the above information. □

5. A sample of people was asked whether they agreed with the opinions of a columnist for a local newspaper. The results were:

Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Percentage Responding	12%	13%	36%	20%	19%

If you were to make a pie chart to represent these results, what would the degree measure need to be for the piece representing the "neutral" response?

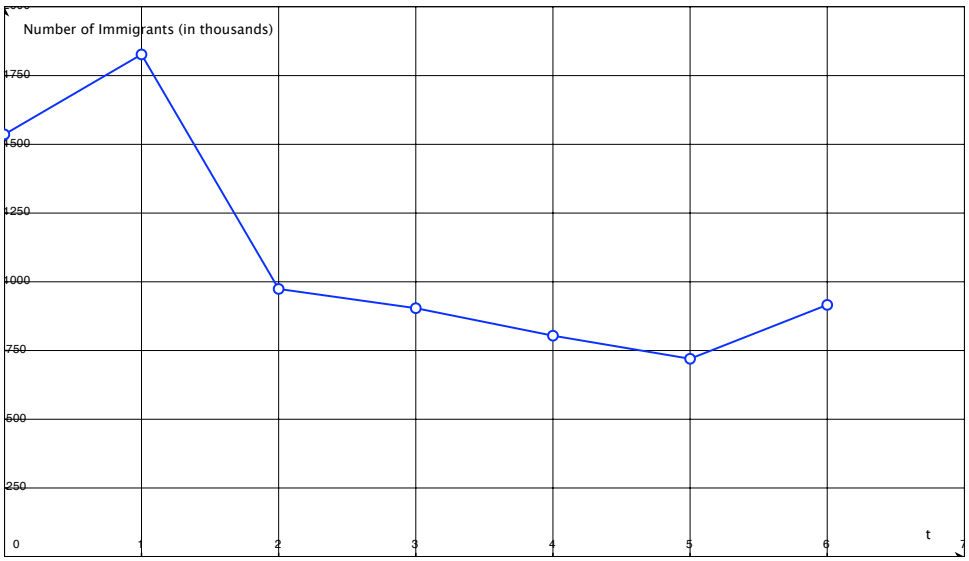
Solution. $36\%\left(\frac{360^\circ}{100\%}\right) = 129.6^\circ$ □

6. The approximate number of immigrants admitted to the US in each of the years from 1990 to 1996 is given in the following table.

Year	Number of Immigrants
1990	1,536,000
1991	1,827,000
1992	974,000
1993	904,000
1994	804,000
1995	720,000
1996	916,000

Make a line graph to represent these data.

Solution. Let $t = 0$ be 1990.



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