Chapter Test

ACHIEVEMENT CHART				
Category	Knowledge / Understanding	Thinking / Inquiry / Problem Solving	Communication	Application
Questions	**All**	**10, 11**	**4, 6, 7, 8, 9, 11**	**5, 6, 11**

Use the following set of data-management final examination scores to answer questions 1 through 5.

92	48	59	62	66	98	70	70	55	63
70	97	61	53	56	64	46	69	58	64

1. **a)** Group these data into intervals and create a frequency table.

b) Produce a frequency diagram and a frequency polygon.

c) Produce a cumulative-frequency diagram.

2. Determine the

a) three measures of central tendency

b) standard deviation and variance

c) interquartile and semi-interquartile ranges

3. **a)** Produce a modified box-and-whisker plot for this distribution.

b) Identify any outliers.

c) Identify and explain any other unusual features of this graph.

4. Explain which of the three measures of central tendency is most appropriate to describe this distribution of marks and why the other two measures are not appropriate.

5. Students with scores above the 90th percentile receive a book prize.

a) How many students will receive prizes?

b) What are these students' scores?

6. An interview committee graded three short-listed candidates for a management position as shown below. The scores are on a scale of 1 to 5, with 5 as the top score.

Criterion	Weight	Clarise	Pina	Steven
Education	2	3	3	4
Experience	2	4	5	3
Interpersonal skills	3	3	3	5
First interview	1	5	4	3

Who should the committee hire based on these data? Justify your choice.

7. Describe the type of sample used in each of the following scenarios.

a) A proportionate number of boys and girls are randomly selected from a class.

b) A software company randomly chooses a group of schools in a particular school district to test a new timetable program.

c) A newspaper prints a questionnaire and invites its readers to mail in their responses.

d) A telephone-survey company uses a random-number generator to select which households to call.

e) An interviewer polls people passing by on the street.

8. A group of 8 children in a day-care centre are to be interviewed about their favourite games. Describe how you would select a systematic sample if there are 52 children at the centre.

9. **a)** Identify the bias in the following surveys and explain the effect it could have on their results.

i) Parents of high-school students were asked: "Do you think that students should be released from school a half hour early on Friday, free to run around and get into trouble?"

ii) Audience members at an investment workshop were asked to raise their hands if they had been late with a bill payment within the last six months.

iii) A random survey of corporate executives asked: "Do you favour granting a cable-television licence for a new economics and business channel?"

b) Suggest how to eliminate the bias in each of the surveys in part a).

10. A mutual-fund company proudly advertises that all of its funds have "first-quartile performance." What mathematical errors has the company made in this advertisement?

ACHIEVEMENT CHECK

Knowledge / Understanding	Thinking / Inquiry / Problem Solving	Communication	Application

11. The graph below shows the stock price for an Ontario technology company over a one-month period in 2001.

a) When did the stock reach its lowest value during the period shown? Suggest a possible reason for this low point.

b) Compare the percent drop in stock price from September 1 to September 8 to the drop during the following week.

c) Sketch a new graph and provide a commentary that the company could use to encourage investors to buy the company's stock.