
Senior 4 Consumer Mathematics (40S) Standards Test

**Written Test
Student Booklet**

January 2005

Manitoba 

Building for the Future

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Senior 4 Consumer Mathematics (40S)
Standards Test—January 2005
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DESCRIPTION

Total Possible Marks: 38

Maximum Time: 90 minutes

This component of the test consists of six parts:

Learning Unit	Suggested Time to Complete	Marks
Personal Finance	10–15 minutes	7.5
Government Finances	10–15 minutes	7
Statistics	10–15 minutes	7
Variation and Formulas	10–15 minutes	7
Investments	10–15 minutes	7
Design and Measurement	10–15 minutes	2.5

- ◆ Students may use the resource package containing formulas and tables.
- ◆ Use of a scientific calculator and ruler may be necessary. Graphing calculators are not permitted.
- ◆ Read all instructions on the test carefully.
- ◆ **If you need more space to answer a question, extra pages may be provided by your teacher. Write your booklet ID number and question number on any extra page(s) used and staple the additional pages into the booklet where your answer begins.**

Remember to:

- ◆ show all your work in this booklet;
- ◆ use your resource package;
- ◆ use a scientific (non-graphing) calculator; and
- ◆ use a ruler.

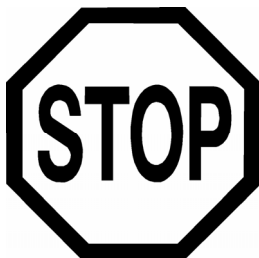
DIRECTIONS

- ◆ Show **complete answers** in the space(s) provided in your student booklet.
- ◆ Let the mark values for each question guide you in answering the question.
- ◆ Show all your work.
- ◆ Use your resource package.
- ◆ Provide explanations and justifications.
- ◆ Use a well-organized method to communicate your answer.

Directing Words

Some questions may include directing words such as *explain*, *illustrate*, and *calculate*. These words are explained below.

<u>The Word</u>	<u>The question is asking for...</u>
identify/list/name/state	a label or title of an item, concept or method
defend/justify/support	an explanation, information, or evidence that shows why your method, idea or answer is good
describe/explain/express	words or symbols, diagrams, a chart or graph, or other methods that clearly shows what you mean or what you are thinking
illustrate/sketch	a reasonably neat picture or diagram (not necessarily to scale) that shows or explains an idea or method
draw	a diagram to scale or graph that shows or explains an idea or method
calculate/convert /determine/find	a mathematical formula or algebraic equation or numerical calculation to solve a problem
plot	placement of a point or points on a graph



PLEASE WAIT UNTIL THE TEACHER TELLS YOU TO TURN THE PAGE.

Personal Finance

3 Marks

1. Marie and Renée are both 22 year-old females. Marie does not smoke. Renée is a smoker. They are comparing the costs of their \$200 000 term life insurance policies. Both policies have a ten-year term, but their annual costs are very different.

A) Calculate Marie's annual premium. (2 marks)

117

B) State which woman has a higher premium and explain why her premium is higher. (1 mark)

118

2 Marks

2. The Nowak family and the Wolfe family purchase homes on the same day in the same town. Both homes and properties have an assessed value of \$100 000. Identify and explain two factors that could cause the mortgage payments for each family to be different.

119

1.5 Marks

3. Antoine Perez negotiates a \$50 000 mortgage with an annual interest rate of 6.75%.

A) Determine the interest that he pays in the first month. (1 mark)

120

B) He makes monthly payments of \$440, which include principal and interest. Determine the amount of principal paid in the first month. (0.5 mark)

121

1 Mark

4. Samuel goes to the bank to secure a mortgage for the purchase of a home. The bank calculates Samuel's Gross Debt Service Ratio to be 40%. Will the bank allow Samuel to purchase this home? Why or why not?

122

1.5 Marks

6. Theo can purchase 1 000 plastic trays for \$580 Canadian from China or from Sweden. Calculate how much more it would cost in custom duties to import from Sweden.

124

2 Marks

7. Paula has 500 euros left over from a trip to Austria. This year she is planning a trip to England. She intends to sell the 500 euros in Canada and use the money from the sale to purchase pounds.

A) Calculate how many Canadian dollars she will receive when she sells the 500 euros. (1 mark)

125

B) Calculate how many pounds she will be able to purchase using the Canadian dollars she received from the sale of 500 euros. (1 mark)

126

1.5 Marks

8. Marie purchases two cartons of cigarettes and 250 grams of loose tobacco. Calculate the tobacco taxes on her purchase.

127

1 Mark

9. The assessed value of a home is \$160 000. The total portion assessment is \$72 000. The municipal tax rate is 23.4 mills. Calculate how much municipal tax the owner will pay.
- A) \$1 684.80
 - B) \$3 076.92
 - C) \$3 744.00
 - D) \$1 684 800.00

128

Answer: _____

Statistics

**DO NOT
USE**

1 Mark

10. Laura writes a college entrance exam. The exam was out of 120 and Laura scored 78. Calculate Laura's percentile rank if 240 students wrote the exam; she scored higher than 176 students and tied 12 other students.

129

1 Mark

11. Pablo scored in the 80th percentile rank on a test. Jean-Pierre scored 80% on the same test. Is it possible to say who got the higher mark? Explain.

130

3 Marks

12. Julio worked on the following standard deviation question for homework.

- A) In the table below there are three incorrect values. In the fourth column, correct Julio's mistakes. (1.5 marks)

$\bar{x} = 28.5$			
x	$x - \bar{x}$	$(x - \bar{x})^2$	Correct Values $(x - \bar{x})^2$
22	-6.5	42.25	
24	-4.5	16.00	
25	-3.5	12.25	
25	-3.5	12.25	
33	4.5	20.25	
42	13.5	202.50	
Sum of squares $\sum (x - \bar{x})^2$		305.50	

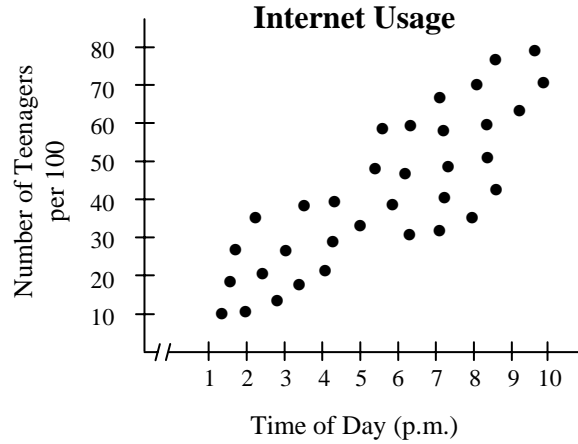
- B) Calculate the standard deviation, using the values from the corrected table above. (1.5 marks)

131

132

2 Marks

13. The following graph describes Internet usage.



A) Describe the relationship between the number of teenagers surfing the Internet and the time of day. (1 mark)

133

B) State the type of correlation that exists. (1 mark)

134

Variations and Formulas

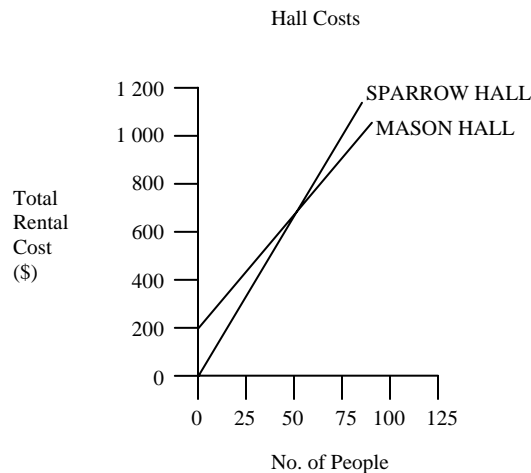
DO NOT
USE

1.5 Marks

14. Carla is organizing a banquet and needs to rent a hall. She has prices from two halls. Her options are:

Name of Hall	Cost
Mason Hall	\$200.00 for cleanup and \$10.00 per person
Sparrow Hall	\$14.00 per person; no separate clean-up costs

The following graphs represent these relationships:



- A) Identify the option that is a partial variation. (0.5 mark)

135

- B) Identify which option Carla should choose based on cost and the number of people. Justify your answer. (1 mark)

136

2 Marks

15. Describe a direct variation and a partial variation. Support your description with an example **OR** a graph (sketch) for each type of variation.

137

	Direct	Partial
Description		
Examples		
Graphs		

1 Mark

16. Jocelyn is planning to install high speed Internet service for her home computer. One Internet provider offers the high-speed service for \$25 for the first 30 hours plus 95¢ for each additional hour. Express the Internet service cost as an equation and define the variables. Assume Jocelyn will always use more than 30 hours each month.

138

2.5 Marks

17. A beach ball has a diameter of 1 meter. Show the calculation of:

A) The surface area of the beach ball. (1.5 marks)

139

B) The volume of the beach ball. (1 mark)

140

Investments

DO NOT
USE

2 Marks

18. Meagan bought 498 shares of a stock at \$4.25 per share. Her broker used the following commission schedule:

Commission Schedule	
8¢ per share for	1–500 shares
6.5¢ per share for	501–1000 shares
5¢ per share for	1001–2500 shares
4¢ per share for	over 2500 shares
+ Base charge of \$40	

- A) Calculate the commission her broker will charge. (1 mark)

141

- B) Calculate the total cost for Meagan to buy the 498 shares. (1 mark)

142

2 Marks

19. Place 4 of the investments below under the most appropriate category in the chart.

art
bonds
jewellery
savings account

hockey cards
term deposits
real estate
GICs

Investments	
Debt	Equity

143

3 Marks

20. A) Javiar owns a house worth \$145 000 with a mortgage of \$65 000. He owes \$4 500 on a car worth \$11 000. Javiar has a credit card debt of \$1 000. He has invested \$10 000 in a GIC and \$45 000 in RSPs. Complete the following table based on Javiar’s financial situation. (1.5 marks)

144

	Assets	Liabilities	
Total			Net Worth

- B) Javiar would also like to buy a truck so his daughter can use the car. The truck is worth \$35 000 and he would need a loan for that amount. Calculate Javiar’s debt equity ratio if he were to buy the truck. (1.5 marks)

145

Design and Measurement

DO NOT
USE

2.5 Marks

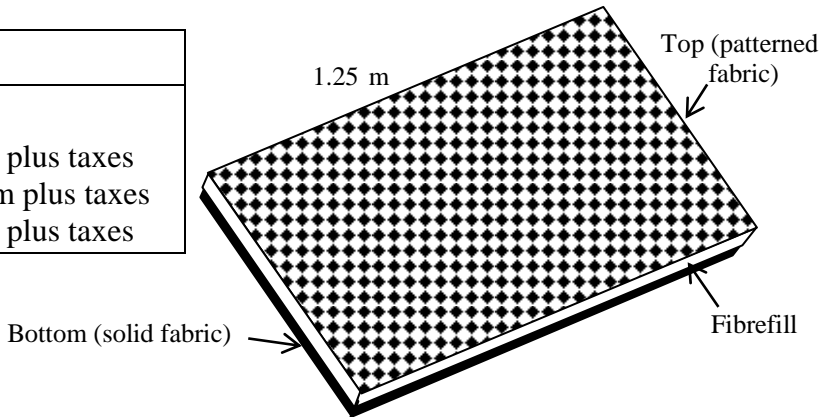
21. An organization wishes to make baby quilts to donate to charity. The total cost of the quilt fabric to make the quilt must not exceed \$500.

146

Design of quilts

A quilt is constructed of a bottom and top layer of fabric with fiberfill in between. Each quilt is 1.25 m long. The quilt will be the exact width of the fabric.

Price List	
Item	Cost
Solid Fabric	\$5.98/m plus taxes
Pattern Fabric	\$10.98/m plus taxes
Fiberfill	\$8.98/m plus taxes



Calculate how many complete quilts can be made with \$500.

**DO NOT
USE**

**DO NOT
USE**