
Grade 12
Consumer Mathematics
Standards Test

Written Test Student Booklet

June 2011

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Ce document est disponible en français.

Grade 12 Consumer Mathematics Standards Test Written Test Student Booklet (June 2011)

DESCRIPTION

Total Possible Marks: 40

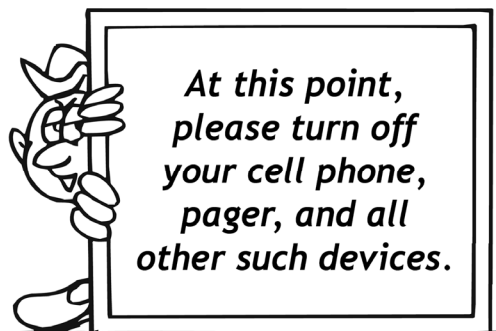
Maximum Time: 90 minutes

This component of the test consists of six parts:

Learning Unit	Suggested Time to Complete	Marks
Personal Finance	10–15 minutes	8
Government Finances	10–15 minutes	7
Statistics	10–15 minutes	7
Design and Measurement	10–15 minutes	2.5
Variation and Formulas	10–15 minutes	7.5
Investments	10–15 minutes	8

GENERAL DIRECTIONS

- ◆ You may use the *Grade 12 Consumer Mathematics Standards Test: Written Test Resource Package (2010/2011)* 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 *Written Test Resource Package*
- ◆ use a scientific (non-graphing) calculator
- ◆ use a ruler

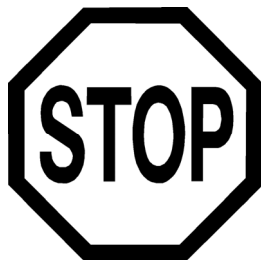
DIRECTIONS

- ◆ Show **complete answers** in the space(s) provided in this booklet.
- ◆ Let the mark values for each question guide you in answering the question.
- ◆ Show all your work.
- ◆ Be sure to include units in your final answer.
- ◆ Use your *Written Test 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.

The Word	The question is asking for...
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, charts or graphs, or other methods that clearly show 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

2.5 Marks

1. Kendall pays \$401 per year for her \$100 000 whole-life insurance policy.

A) Calculate Kendall's monthly payment. (1 mark).

115

B) Calculate the difference Kendall pays between making one yearly payment and twelve (12) monthly payments. (1 mark)

116

C) Explain why Kendall pays more money when she makes monthly payments, rather than one yearly payment. (0.5 mark)

117

1 Mark

2. Explain why a person would choose comprehensive homeowner's insurance instead of standard homeowner's insurance.

118

3. Wendy has \$50 000 saved. She would like to purchase a \$200 000 home.

A) How much money should Wendy put as a cash down payment towards the house?
Explain your answer. (1 mark)

119

B) Wendy can choose a 15-year mortgage at 5.75% or a 25-year mortgage at 6.25%. Which option should Wendy choose? Justify your response. (1 mark)

120

2.5 Marks

4. Oscar's gross annual income is \$97 500. His monthly heating bill is \$100 and his monthly property taxes are \$300. He would like to make a monthly mortgage payment of \$2 030.

A) Determine Oscar's Gross Debt Service Ratio (GDSR). (1.5 marks)

121

B) Justify whether or not Oscar can afford this monthly mortgage payment. (1 mark)

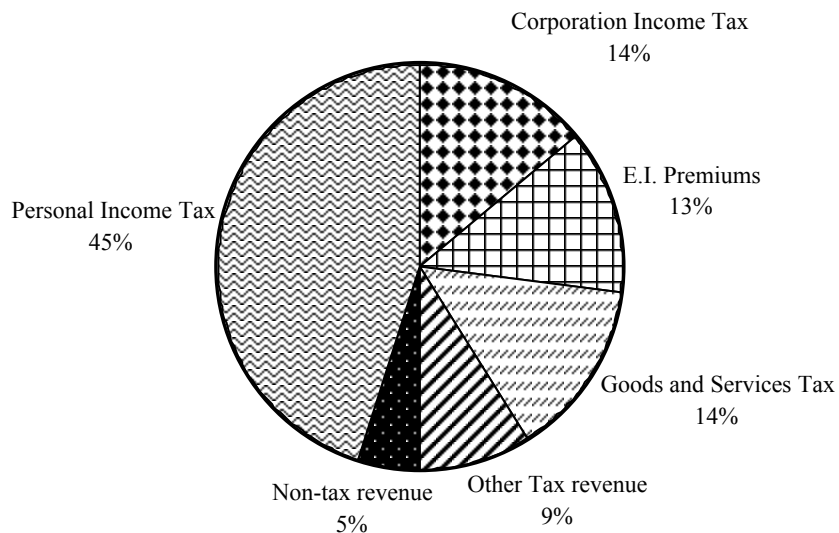
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Government Finances

1 Mark

5.

2007 Federal Government Revenue



Calculate the revenue generated by the GST in 2007 if the federal government's total revenue was \$164.5 billion.

123

1 Mark

6. A company imports \$4 000 of house paint from Italy (MFN). Calculate the customs duties paid on this import purchase.

124

2 Marks

7. A Canadian hockey team needs \$54 million US to pay their players' salaries.

A) Calculate the amount of money in Canadian funds they must convert to US funds to pay their players. (1 mark)

125

B) The exchange rate has increased to 1.1212. Calculate the increased cost to the hockey team. (1 mark)

126

1 Mark

8. Calculate the amount of provincial tobacco taxes on two 34-gram tins of loose tobacco.

127

2 Marks

9. The total portioned assessment of property in Shoreville is \$20 680 000. The city needs to collect \$500 000 in property taxes.

A) Calculate the mill rate for Shoreville. (1 mark)

128

B) If Shoreville raised the mill rate to 27.42 mills, determine the amount of revenue they could collect. (1 mark)

129

Statistics

2 Marks

10. Tommy and 5 other students scored 78 out of 85 on an English exam. Forty (40) students wrote the exam, and 23 students scored lower than Tommy.

A) Calculate Tommy's percentile rank. (1.5 marks)

130

B) Explain what Tommy's percentile rank represents. (0.5 mark)

131

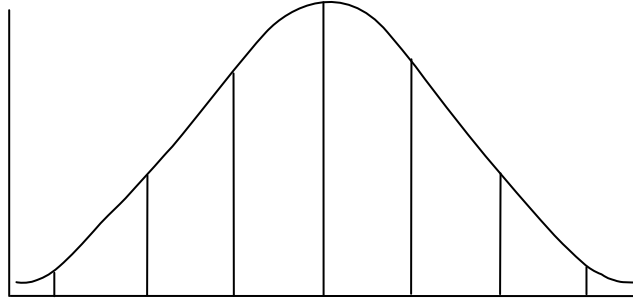
11. Ten people participated in a bull-riding competition. Their times (x) are listed in the chart below.

Complete the chart and determine the standard deviation for the times.

132

<i>times (x)</i>	$(x - \bar{x})^2$
1	16
2.5	6.25
4	1
4	1
4.5	0.25
5	0
6.5	2.25
7	
7.5	6.25
8	9
$\Sigma(x - \bar{x})^2$	

12. The mean gas mileage of all vehicles within the town of Ashern is 12.5 miles/gallon. The gas mileage follows a normal distribution with a standard deviation of 1.5 miles/gallon.



- A) State the percent of vehicles that have a better gas mileage than 15.5 miles/gallon. (0.5 mark) 133
- B) There are 1 150 vehicles within the town of Ashern. Calculate the number of vehicles that will get less than 11 miles/gallon. (1 mark) 134
- C) A company claims a new additive will increase everyone's gas mileage by 10%. Explain what this will do to the standard deviation. (0.5 mark) 135

1 Mark

13. Describe the relationship that exists between part-time hours worked after school and math test scores if the correlation coefficient is -0.85 .

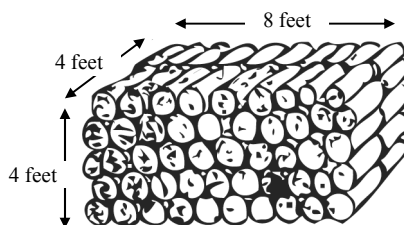
136

Design and Measurement

2.5 Marks

14. Jerimiah lives in a house that uses a wood burning stove for heating. He needs your help to determine the cost of buying wood for the winter season.

A cord of wood is wood piled in the shape of a rectangular solid to measure 4 feet high, 4 feet wide, and 8 feet long.



He uses approximately 6% of a cord of wood per day to heat his house. He anticipates the number of days in the winter season to be 150 days and a cord of wood costs \$140.

Calculate Jerimiah's seasonal heating cost.

137

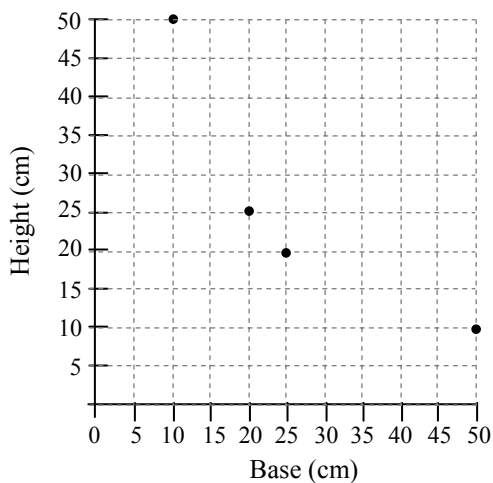
Variation and Formulas

1 Mark

15. Ms. Peabody's students are constructing triangles that have an area of 250 cm^2 .

Below is a graph showing four possible dimensions for a triangle that has an area of 250 cm^2 . (1 mark)

138



Use the graph to complete the table below:

Type of Variation	
Constant of Variation Value	

16. Interest earned on a one-year Guaranteed Investment Certificate (GIC) is directly proportional to the amount invested. When \$550 is invested, interest of \$34.10 is earned. Determine the interest earned if \$2 000 is invested.

1 Mark

17. A flying bird dives towards a shiny object on the ground. The formula that represents this dive is:

$$h = 4t^2 - 12t + 9.1$$

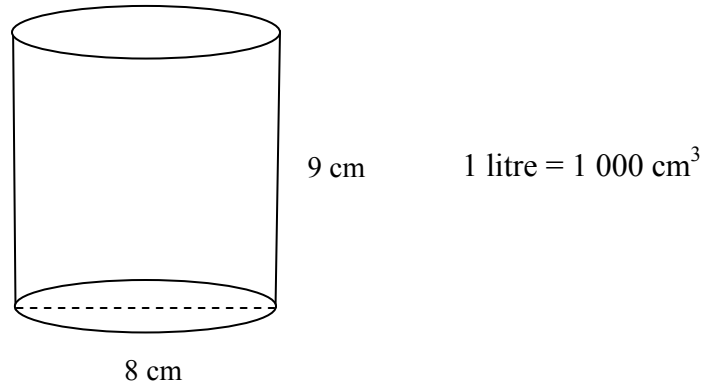
where t = time in seconds

h = height in metres

Determine how high the bird is above the ground after 1.5 seconds.

140

18. Cheryl wants to drink 1 litre of water at work each day. The glasses at work have a diameter of 8 cm and a height of 9 cm. Determine if 3 glasses of water will be enough for Cheryl to meet her goal.



19. Crankshaft runs around a tree that has a diameter of 2 feet. He is 3 feet away from the tree and runs around the tree 10 times. Determine the distance Crankshaft runs using the formula:

142

$$c = \pi d$$

where c = circumference in feet

d = diameter in feet

(The cartoon that appeared in the print version is not available due to copyright restrictions.)

Investments

2 Marks

20. Angela is 60 years old and considering investing some of her money. Explain what type of investment she should make with respect to risk and liquidity.

143

1 Mark

21. Tyler has to decide whether or not to invest in a Registered Savings Plan (RSP). Identify two reasons that support purchasing the RSP.

144

22. Zoë decides to buy stocks through a broker. The broker charges a base price of \$40 per trade plus 8¢ per share.

A) If Zoë buys 1 200 shares of PetroCan at \$74 a share, calculate how much she will pay for the shares in total. (1.5 marks)

145

B) Zoë sells the stock a month later and receives \$85 864. Determine her percentage gain or loss on the stock transaction. (1.5 marks)

146

23. Tracy has \$165 000 in assets and \$130 000 in liabilities.

A) Calculate Tracy's net worth. (0.5 mark)

147

B) Tracy borrows \$16 000 from the bank to purchase a car. Complete the chart below:
(1.5 marks)

148

New assets	
New liabilities	
New net worth	

