
Grade 12
Consumer Mathematics
Standards Test

Written Test Marking Guide

June 2008

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Marking Guidelines

The *Grade 12 Consumer Mathematics Standards Test: Written Test Marking Guide (June 2008)* is based on the outcomes and standards found in the *Senior 4 Consumer Mathematics: A foundation for Implementation (2004)* document.

The recommended procedure for scoring student responses is as follows:

1. Read the *Grade 12 Consumer Mathematics Standards Test: Written Test Marking Guide (June 2008)*.
2. Study the student samples provided and the rationales for the allotted scores.
3. Determine the mark for the student's response by comparing its features with the *Written Test Marking Guide* descriptions. The descriptions and samples only typify a student's response to a given question; an exact match is not anticipated.

Irregularities in Standards Tests

During the administration of standards tests, supervising teachers may encounter irregularities. Markers may also encounter irregularities during local marking sessions. Appendix A provides examples of such irregularities as well as procedures to follow to report irregularities.

Presentation of the Student Samples

Each constructed-response question is presented using the following sections:

Test Item
Number

Unit of
Study

Type of
Test Item

Maximum Number
of Marks Allowed

This section presents the test item as it appears in the student booklet, including how marks should be allotted.

Question 2	V-C1	Restricted Response	(2 Marks)
Test Item and Marking Guide	<p>Henry owns a \$150 000 home in Metro Winnipeg.</p> <p>A) Calculate the cost to insure Henry's home with a \$200 deductible and standard coverage. (1 mark)</p> <p style="text-align: center;"><i>Answer:</i> $\underbrace{550}_{0.5 \text{ mark}} \times 1.10 = \underbrace{\\$605}_{0.5 \text{ mark}}$</p> <p>B) Explain one reason why insurance rates for this home would be higher in Area 4. (1 mark)</p> <p><i>Sample answers:</i></p> <ul style="list-style-type: none"> - increased distances from fire hydrants - increased response times for firefighters 		

This section presents student sample responses with the mark(s) allotted and the rationale justifying the mark(s) allotted.

Sample 1	Restricted Response	(2 Marks)
<p>A) <i>550 + 55 = \$605 monthly insurance payment</i></p> <p>B) <i>The farther you are the more expensive your insurance is.</i></p>		
<p>Mark: 1 out of 2 Rationale: - Correct answer in Part A (2 × 0.5 mark)</p>		

Personal Finance

Question 1

V-C1

Restricted Response

(2 Marks)

Astrid is a 22-year-old female smoker who purchases a whole-life insurance policy worth \$100 000. Calculate her monthly payment.

Answer:

$$\frac{\$100\,000}{\$1\,000} \times \underbrace{\$3.62}_{0.5 \text{ mark}} + \underbrace{\$75}_{0.5 \text{ mark}} = \underbrace{\$437}_{0.5 \text{ mark}} \text{ annual premium}$$

$$\$437 \times 0.09 = \underbrace{\$39.33}_{0.5 \text{ mark}} \text{ monthly payment}$$

Test Item and Marking Guide

Sample 1

Restricted Response

(2 Marks)

$$1000 \times 3.62 = 3\ 620 \times .09 = 325.80$$

Mark: 1 out of 2

- Rationale:**
- Correct table value (0.5 mark)
 - Correct monthly payment (follow-through error) (0.5 mark)

Sample 2

Restricted Response

(2 Marks)

Age 22**Gender female****Smoker**

$$100\ 000 \quad \frac{100\ 000 \times 1.32}{1000} + 75 = 207$$

Mark: 1 out of 2

- Rationale:**
- Correct policy fee (0.5 mark)
 - Correct annual payment (follow-through error) (0.5 mark)

Sample 3

Restricted Response

(2 Marks)

$$3.62 / 1\ 000$$

$$3\ 62 \times 100 = 362 \times .09 = 32.58$$

Mark: 1.5 out of 2

- Rationale:**
- Correct table value (0.5 mark)
 - Correct annual payment (follow-through error) (0.5 mark)
 - Correct monthly payment (0.5 mark)

Question 2

V-C1

Restricted Response

(2 Marks)

Henry owns a \$150 000 home in Metro Winnipeg.

- A) Calculate the cost to insure Henry's home with a \$200 deductible and standard coverage. (1 mark)

$$\text{Answer: } \underbrace{550}_{0.5 \text{ mark}} \times 1.10 = \underbrace{\$605}_{0.5 \text{ mark}}$$

- B) Explain one reason why insurance rates for this home would be higher in Area 4. (1 mark)

Sample answers:

- *increased distances from fire hydrants*
- *increased response times for firefighters*

Test Item and Marking Guide

Sample 1

Restricted Response

(2 Marks)

- A) $550 + 55 = \$605$ monthly insurance payment
- B) The farther you are the more expensive your insurance is.

Mark: 1 out of 2**Rationale:** - Correct answer in Part A (2×0.5 mark)**Sample 2**

Restricted Response

(2 Marks)

- A) \$550
- B) It is harder to put out a fire if you are far away from the city.

Mark: 1.5 out of 2**Rationale:** - Correct table value in Part A (0.5 mark)
- Correct response in Part B (1 mark)**Sample 3**

Restricted Response

(2 Marks)

- A) $550 \times 10\% = \$55$
 $550 + 55 = \$605$
- B) The rates go up as your distance increases because you are more likely to pay more to replace your property if something bad happens.

Mark: 2 out of 2**Rationale:** - Correct solution in Part A (2×0.5 mark)
- Correct response in Part B (1 mark)

Question 3

V-C2

Restricted Response

(3 Marks)

Juan Valdez buys a \$150 000 house and will make a \$30 000 down payment. The bank will charge him an interest rate of 5% with the mortgage amortized over 15 years.

A) Determine the monthly mortgage payment. (2 marks)

Answer: $\$150\,000 - \$30\,000 = \$120\,000$ mortgage ← 0.5 mark

$$\underbrace{\frac{\$120\,000}{1\,000}}_{0.5 \text{ mark}} \times \underbrace{\$7.88}_{0.5 \text{ mark}} = \underbrace{\$945.60}_{0.5 \text{ mark}}$$

Note to markers: Award marks for use of \$120 instead of $\frac{\$120\,000}{1\,000}$

B) Calculate the interest paid in the first month. (1 mark)

$$\text{Answer: } \$120\,000 \times \underbrace{\frac{0.05}{12}}_{0.5 \text{ mark}} = \underbrace{\$500}_{0.5 \text{ mark}} \text{ interest}$$

Sample 1

Restricted Response

(3 Marks)

- A) $150\ 000$
 $\frac{-30\ 000}{120\ 000}$
- $120\ 000 \times .05 = \$6\ 000$
 $\frac{126\ 000}{15} \times 8\ 400$
 $\frac{8\ 400}{12} = \$700/\text{month}$
- B) $700 \times .05 = \$35$

Mark: 0.5 out of 3**Rationale:** - Correct mortgage amount in Part A (0.5 mark)**Sample 2**

Restricted Response

(3 Marks)

- A) $\$7.88 \times 30 = 236.40$
 $150\ 000$
 $\frac{-30\ 000}{120\ 000}$
- B)

Mark: 1 out of 3**Rationale:** - Correct mortgage amount in Part A (0.5 mark)
- Correct table value in Part A (0.5 mark)**Sample 3**

Restricted Response

(3 Marks)

- A) $\$150\ 000 - \$30\ 000 = \$120\ 000$
 $\left(\frac{\$120\ 000}{\$1\ 000} \right) 7.88 = \$945.60$
- B)

Mark: 2 out of 3**Rationale:** - Correct solution in Part A (4×0.5 mark)

Question 4

V-C4

Restricted Response

(1 Mark)

Harold has been informed that he is able to pay a maximum monthly mortgage payment of \$772 a month when his Gross Debt Service Ratio (GDSR) is 32%. The combined monthly property taxes and heating costs for a house he wants to buy are \$230. Calculate Harold's gross monthly income.

Answer:

$$GDSR = \frac{\text{Monthly Mortgage Payment} + \text{Monthly Heating Cost} + \text{Monthly Property Taxes}}{\text{Gross Monthly Income}} \times 100$$

$$32\% = \frac{\$772 + \$230}{\text{Gross Monthly Income}} \times 100 \quad \leftarrow 0.5 \text{ mark for substitution}$$

$$\text{Gross Monthly Income} = \frac{\$772 + \$230}{0.32}$$

$$\text{Gross Monthly Income} = \$3\,131.25 \quad \leftarrow 0.5 \text{ mark}$$

Test Item and Marking Guide

Sample 1

Restricted Response

(1 Mark)

$$GDSR = \frac{\text{mortgage} + \text{heating} + \text{taxes}}{\text{Gross monthly income}} \times 100$$

$$\frac{32\%}{100} = \frac{772 + 230}{\text{Gross monthly}} \times \frac{100}{100} \qquad 32 \times 1\,002 = \frac{1\,002}{\text{Gross}} \times 1\,002$$

$$\text{Monthly} = \$320.64$$

Mark: 0.5 out of 1**Rationale:** - Correct substitution (0.5 mark)**Sample 2**

Restricted Response

(1 Mark)

$$772 + 230 = \$1\,002 \div .32 = \$3\,131.25$$

His monthly income would have to be \$3 131.25.

Mark: 1 out of 1**Rationale:** - Correct solution (2 × 0.5 mark)**Sample 3**

Restricted Response

(1 Mark)

$$\frac{32\%}{100} = \frac{772 + 230}{?} \div 32\% = 1\,002$$

$$1\,002 \div .32 = \underline{\underline{\$3\,131.25}}$$

$$1\,002 \div .32 (\times 100 = 32\%)$$

Mark: 1 out of 1**Rationale:** - Correct solution (2 × 0.5 mark)

Government Finance

Question 5

V-E4

Restricted Response

(2 Marks)

Vito travels from New York to Hong Kong on business. He has a stopover in Vancouver and needs to change his money at a bank while in Vancouver.

A) Convert his \$800 US into Canadian funds. (1 mark)

$$\text{Answer: } \$800 \times \underbrace{1.0385}_{0.5 \text{ mark}} = \underbrace{\$830.80}_{0.5 \text{ mark}} \text{ Canadian}$$

B) Convert his Canadian dollars into Hong Kong dollars. (1 mark)

$$\text{Answer: } \$830.80 \div \underbrace{0.1455}_{0.5 \text{ mark}} = \underbrace{5709.97}_{0.5 \text{ mark}} \text{ Hong Kong dollars}$$

Test Item and Marking Guide

Sample 1

Restricted Response

(2 Marks)

A) $800 \times 1.0385 = 830.80$

$800 \times 1.0977 = 878.16$

B) $830.80 \times 0.1455 = 120.88$

$878.16 \times 0.1455 = 127.77$

$$\frac{120.88 + 127.77}{2} = 124.34 \text{ in Hong Kong money (dollars)}$$

Mark: 0.5 out of 2**Rationale:** - Correct table value in Part B (0.5 mark)**Sample 2**

Restricted Response

(2 Marks)

A) $\frac{800}{1.0385} = 0.1455 = \770.34 Canadian

B) $700.34 \times 0.1455 = 112.08 \text{ Hong Kong dollars}$

Mark: 0.5 out of 2**Rationale:** - Correct table value in Part B (0.5 mark)**Sample 3**

Restricted Response

(2 Marks)

A) $\frac{US}{CAN} \quad \frac{1}{1.0977} \quad \frac{800}{x} \quad x = 800 = (1.0977) = \878.16 CAN funds

B) $\frac{CAN}{HKD} \quad \frac{0.1455}{1} \quad \frac{878.16}{x}$

$$\frac{0.1455 \times}{0.1455} = \frac{878.16}{0.1455}$$

$x = \$6035.46 \text{ Hong Kong Dollars}$

Mark: 1.5 out of 2**Rationale:** - Incorrect table value in Part A
- Correct solution in Part A (follow-through error) (0.5 mark)
- Correct solution in Part B (follow-through error) (2 × 0.5 mark)

Question 6

V-E5

Restricted Response

(1 Mark)

An airline paid \$16 in fuel tax. Calculate the amount of fuel that was purchased.

Answer: Aircraft fuel tax: \$0.032 per litre ← 0.5 mark

\$16 ÷ \$0.032/L = 500 litres purchased ← 0.5 mark

Note to marker: Units (litres) must be indicated in final answer or explicitly stated with the constant.

Test Item and Marking Guide

Sample 1

Restricted Response

(1 Mark)

$$\frac{\$16}{3.2} \quad 5L$$

Mark: 0.5 out of 1

Rationale: - Incorrect table value
- Correct solution (follow-through error) (0.5 mark)

Sample 2

Restricted Response

(1 Mark)

$$3.2 \text{ ¢ / L}$$

$$\frac{16}{3.2} = 5 \text{ L}$$

Mark: 0.5 out of 1

Rationale: - Correct table value (0.5 mark)

Sample 3

Restricted Response

(1 Mark)

$$\$ 16 \div 0.032 = 500 \text{ L}$$

Mark: 1 out of 1

Rationale: - Correct solution (2 × 0.5 mark)

Question 7

V-E6

Restricted Response

(2 Marks)

Listed below are the projected municipal expenditures for the municipality of Farrahville for the fiscal year of 2006–2007.

Category	Expenditures (\$ millions)
Recreation and Cultural Services	4.40
Transportation	3.30
General Government Services	3.96
Protective Services	5.50
Other	4.84
Total	22.00

Test Item and Marking Guide

- A) Calculate the mill rate required for the municipality to cover its projected expenditures if the total portioned assessment value is \$630 million. (1 mark)

$$\text{PTR} = \frac{\text{Total Revenue Required}}{\text{Total Portioned Assessment}} \times 1\,000 = \text{mills}$$

$$\text{Answer: } \underbrace{\frac{\$22 \text{ million}}{\$630 \text{ million}}}_{0.5 \text{ mark}} \times 1\,000 = \underbrace{34.9}_{0.5 \text{ mark}} \text{ mills}$$

- B) State the largest municipal expenditure for Farrahville and calculate its percent of the total. (1 mark)

Answer: Protective Services ← 0.5 mark

$$\frac{\$5.50 \text{ million}}{\$22.00 \text{ million}} \times 100 = 25\% \quad \leftarrow 0.5 \text{ mark}$$

Sample 1

Restricted Response

(2 Marks)

A) $\frac{630\,000\,000}{22\,000\,000} \times 1000 =$

- B) Protective service
-
- Other
-
- rec & cultural service
-
- general government service
-
- transportation

Mark: 0 out of 2**Rationale:** - Incorrect solution**Sample 2**

Restricted Response

(2 Marks)

A) 630 000 000

B) Protective Services $\frac{5.50}{22.00}$ 25%

Mark: 1 out of 2**Rationale:** - Correct solution in Part B (2 × 0.5 mark)**Sample 3**

Restricted Response

(2 Marks)

A) $\frac{22}{630} 1000 = 34.92$

B) Protective services (5.5)
 $5.5 \div 22 = .25 \therefore 25\%$

Mark: 2 out of 2**Rationale:** - Correct solutions (2 marks)

Question 8

V-E2

Restricted Response

(1.5 Marks)

Choose the **three (3)** government sources of **revenue** from the following list and place them in the appropriate category:

- Snow Removal
- Aboriginal and Northern Affairs
- Property Taxes
- Custom Duties
- Retail Sales Tax
- Old Age Security Benefits

Answers:

Municipal	Provincial	Federal
<i>Property Taxes</i>	<i>Retail Sales Tax</i>	<i>Custom Duties</i>

3 × 0.5 mark

Test Item and Marking Guide



Statistics

Question 9

V-F2

Restricted Response

(2 Marks)

Listed below are 24 students' math scores.

3	21	27	29	33	38
14	22	28	30	33	39
18	23	28	30	34	39
20	27	28	33	37	40

Determine which score is Rob's if his percentile rank on the math test is 58.

Answer:

Trial and Error:

Score = 30

$$P = \left[\frac{B + 0.5(E)}{n} \right] \times 100$$

$$P = \left[\frac{13 + 0.5(2)}{24} \right] \times 100 \left\{ \begin{array}{l} \text{No marks for 1 correct substitution of } B, E \text{ or } n \\ \text{OR} \\ \text{0.5 mark for any 2 correct substitutions of } B, E \text{ or } n \\ \text{OR} \\ \text{1 mark for 3 correct substitutions of } B, E \text{ and } n \end{array} \right.$$

$$= 58.33 \quad \leftarrow 0.5 \text{ mark}$$

$$= 58$$

$$\therefore \text{Rob's score is 30} \quad \leftarrow 0.5 \text{ mark}$$

OR

Algebraic:

Solution as above, with $P = 58$ and $B = \text{unknown}$

OR

Estimation: (*Rob is ranked 58 out of 100*)

$$\frac{58}{100} = \frac{B}{24} \quad \leftarrow 0.5 \text{ mark}$$

$$B = 13.92 \quad \leftarrow 0.5 \text{ mark}$$

14th and 15th scores are 30 $\leftarrow 0.5 \text{ mark}$

\therefore *Rob's score is 30* $\leftarrow 0.5 \text{ mark}$

Sample 1

Restricted Response

(2 Marks)

$$3 + 14 + 18 + 20 \text{ etc.} = 674 \div 29 = 29$$

Mark: 0 out of 2**Rationale:** - Incorrect solution**Sample 2**

Restricted Response

(2 Marks)

$$58\% \text{ of } 40 = 23.2$$

$$\text{So } 58 \text{ percentile} = 23$$

Mark: 0 out of 2**Rationale:** - Incorrect solution**Sample 3**

Restricted Response

(2 Marks)

$$24 \times .58 = 14, \text{ Rob got the } 7^{\text{th}} \text{ highest mark}$$

Mark: 1.5 out of 2**Rationale:** - Alternate solution (3 × 0.5 mark)
- Rob's score not stated

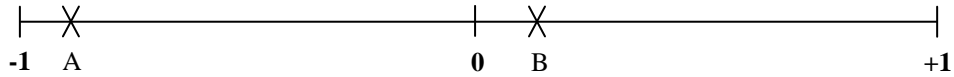
Question 10

V-F6

Restricted Response

(2 Marks)

The correlation coefficient (r -value) is a number that falls between -1 and $+1$.



Indicate the strength and type of correlation coefficient for each position on the line above.

Answer:

Position	Strength	and	Type
A	<i>Strong</i>		<i>Negative</i>
B	<i>Weak</i>		<i>Positive</i>

*2 × 0.5 mark
for strength*

*2 × 0.5 mark
for type*



Question 11

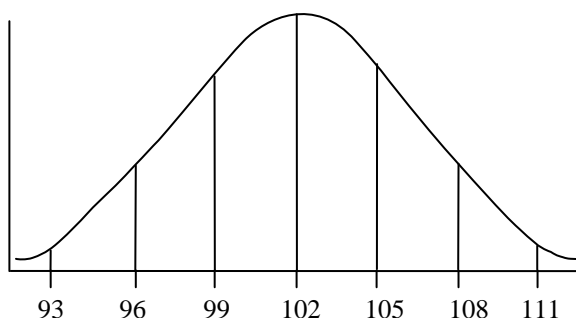
V-F5

Restricted Response

(1.5 Marks)

The mean driving speed on Manitoba highways is 102 km/h. The speed is normally distributed with a standard deviation of 3 km/h.

- A) Calculate the percent of people who drive between 99 and 108 km/h. (0.5 mark)



Answer: $34\% + 34\% + 13.5\% = 81.5\%$ ← 0.5 mark

- B) Out of 1 000 vehicles on a highway, how many will be driven faster than 105 km/h? (1 mark)

Answer: $50\% + 34\% = 84\%$
 $100\% - 84\% = 16\%$ ← 0.5 mark
 $16\% \times 1\,000 = 160\text{ vehicles}$ ← 0.5 mark

OR

$13.5\% + 2.35\% + 0.15\% = 16\%$ ← 0.5 mark
 $16\% \times 1\,000 = 160\text{ vehicles}$ ← 0.5 mark

Sample 1

Restricted Response

(1.5 Marks)

A) $\frac{4}{7} = 57\%$

B) $1000 \times .57 = 570$ people

Mark: 0 out of 1.5**Rationale:** - Incorrect solution**Sample 2**

Restricted Response

(1.5 Marks)

A) $34 + 34 + 12.5 = 80.5\%$

B) $12.5 + 3.5 + 1.5 = 17.5\%$

Mark: 0 out of 1.5**Rationale:** - Incorrect solution**Sample 3**

Restricted Response

(1.5 Marks)

A) $34 + 34 + 13.5 = 81.5\%$

B) $13.5 + 2.35 + .15 = 16\%$

Mark: 1 out of 1.5**Rationale:** - Correct solution in Part A (0.5 mark)
- Correct percent in Part B (0.5 mark)

Question 12

V-F4

Open Response

(1 Mark)

At the end of the basketball season, Bob Slammer and Jim Missalot had scored the same number of points. The standard deviation for points scored per game is 4.5 for Bob and 11.7 for Jim. Which player should win the trophy for the most valuable player? Justify your decision using standard deviation.

Answer: Bob should win the trophy because he was more consistent throughout the season.

OR

Jim should win the trophy because he scored a lot of points in some of the games during the season.

Test Item and Marking Guide

Sample 1

Open Response

(1 Mark)

*Bob should win
his score is closer to the standards?*

Mark: 0 out of 1**Rationale:** - Incorrect response**Sample 2**

Open Response

(1 Mark)

Jim because when he was playing he had a better score.

Mark: 0 out of 1**Rationale:** - Incorrect response**Sample 3**

Open Response

(1 Mark)

Bob should win the trophy for most valuable player based on standard deviation. because he deviated less from the mean, he was more consistent with the baskets he scored per game than Jim.

Mark: 1 out of 1**Rationale:** - Correct response (1 mark)

Design and Measurement

Question 13

V-D5

Restricted Response

(2.5 Marks)

Eco-Fibre manufactures pedestal speaker stands that each have a surface area of 0.9 m^2 . The process to complete each stand requires one coat of stain and two coats of varnish.

	Cost/m ²	Number of applications	Time to apply a coat
Stain	\$1.20	1	15 minutes
Varnish	\$1.50	2	15 minutes

Calculate the total cost of completing each stand if workers are paid \$8.00 per hour.

Answer: Stain and Varnish:

$$(1 \times \$1.20) + (2 \times \$1.50) = \underbrace{\$4.20}_{0.5 \text{ mark}} \text{ per } m^2$$

$$\$4.20/m^2 \times 0.9 \text{ m}^2 = \underbrace{\$3.78}_{0.5 \text{ mark}}$$

Labour (Stain and Varnish):

$$(1 \times 15 \text{ minutes}) + (2 \times 15 \text{ minutes}) = \underbrace{0.75 \text{ hour}}_{0.5 \text{ mark}} \text{ per stand}$$

$$0.75 \text{ hours} \times \$8.00/\text{hour} = \underbrace{\$6.00}_{0.5 \text{ mark}}$$

$$\$3.78 + \$6.00 = \$9.78 \text{ per stand} \quad \leftarrow 0.5 \text{ mark}$$

Note to marker:

No loss of marks for the correct use of PST and GST on stain and varnish.

Test Item and Marking Guide

Sample 1

Restricted Response

(2.5 Marks)

$$\text{Stain } 0.9 \times 1.20 = \$1.08$$

$$\text{Varnish } 0.9 \times 1.50 = \$1.35 \times 2 = \boxed{\$2.70}$$

Time = 15 min stain

$$30 \text{ min varn.} = 45 \text{ min.} = \$2$$

$$\$2.70 + \$2.00 = \$4.70$$

Mark: 1.5 out of 2.5

- Rationale:**
- Correct costs of materials (2×0.5 mark)
 - Correct time for labour (0.5 mark)
 - Incomplete calculation of total cost

Sample 2

Restricted Response

(2.5 Marks)

$$1.20 \times 0.9 = \quad \quad \quad \$1.08$$

$$1.50 \times 0.9 = \$1.35 \times 2 = \underline{\$2.70}$$
$$\quad \quad \quad \$3.78$$

$$.75 \text{ min} \times 8 = \$6$$

$$3.75 + 6 = 9.75 \text{ per speaker stand}$$

Mark: 2 out of 2.5

- Rationale:**
- Correct cost of materials (2×0.5 mark)
 - Correct cost of labour (2×0.5 mark)

Sample 3

Restricted Response

(2.5 Marks)

$$0.9\text{m}^2 \times \$1.20 = \$1.08$$

$$0.9\text{m}^2 \times \$1.50 \times 2 = \underline{\$2.70}$$

 $\$3.78$ cost of stain and varnish

$$45 \text{ minutes} = \frac{45}{60} = .75 \text{ hour}$$

$$.75 \text{ hr} \times \$8.00/\text{hr} = \$6.00$$

$\$6.00$ is the amount required to pay worker for finishing 1 pedestal speaker stand.

Mark: 2 out of 2.5

- Rationale:**
- Correct cost of materials (2×0.5 mark)
 - Correct cost of labour (2×0.5 mark)

Variation and Formulas

Question 14

V1-F1

Restricted Response

(2.5 Marks)

The relationship between Fahrenheit and Celsius is given by the formula:

$$F = \frac{9}{5}C + 32$$

A) Complete the table below: (1 mark)

Celsius	0	10	20	30
Fahrenheit	32	50		

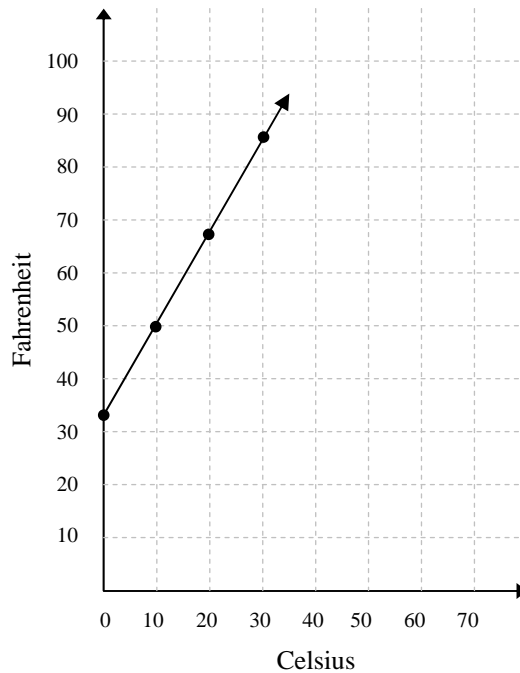
Answer:

Celsius	0	10	20	30
Fahrenheit	32	50	68	86

0.5 mark *0.5 mark*

B) Graph the relationship between Fahrenheit and Celsius. (1 mark)

Answer:



*←0.5 mark
for plotting
minimum 2 points
←0.5 mark for line*

C) Identify the type of variation represented. (0.5 mark)

Answer: partial variation

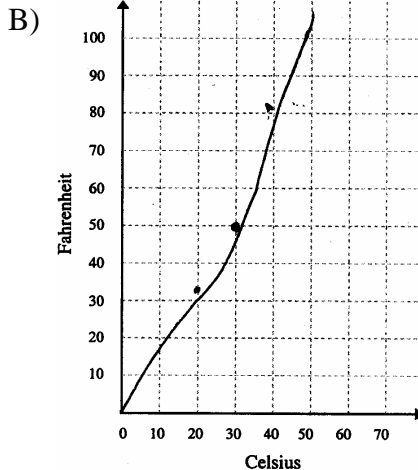
Sample 1

Restricted Response

(2.5 Marks)

A)

Celsius	0	10	20	30
Fahrenheit	32	50	82	114



C) direct variation

Mark: 0 out of 2.5

Rationale: - Incorrect solution

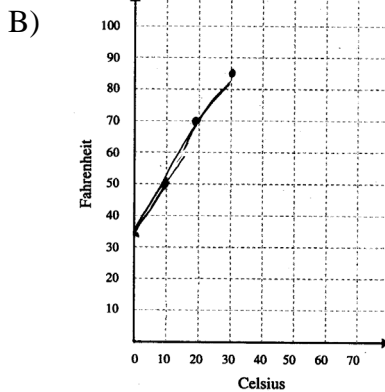
Sample 2

Restricted Response

(2.5 Marks)

A)

Celsius	0	10	20	30
Fahrenheit	32	50	70	83



C) Partial variation

Mark: 1.5 out of 2.5

Rationale: - Correct graph in Part B (follow-through error) (2 × 0.5 mark)
 - Correct type in Part C (0.5 mark)

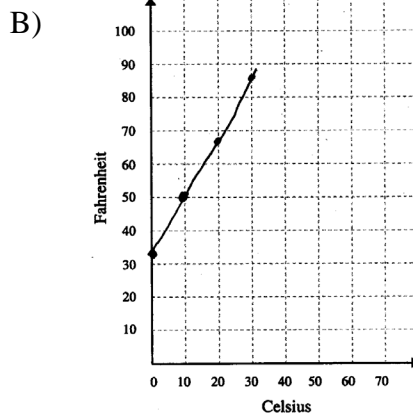
Sample 3

Restricted Response

(2.5 Marks)

A)

Celsius	0	10	20	30
Fahrenheit	32	50	68	86



C) dependent variation

Mark: 2 out of 2.5

Rationale: - Correct solution in Part A (2 × 0.5 mark)
 - Correct graph in Part B (2 × 0.5 mark)

An ice cream store charges a fixed amount for a single-scoop cone, plus an additional amount for each scoop of ice cream. The cost of a cone with two scoops is \$4.04 while the cost of a cone with four scoops is \$5.54.

- A) Identify the type of variation for the relationship between the number of scoops and the cost of the cone. (0.5 mark)

Answer: partial variation OR $y = kx + F$

- B) Find the cost of each scoop. (1 mark)

Answer:

$$\left. \begin{array}{l} \$5.54 = 4k + F \\ \$4.04 = 2k + F \\ \hline \$1.50 = 2k \end{array} \right\} 0.5 \text{ mark for strategy}$$

$$k = \$0.75 \leftarrow 0.5 \text{ mark}$$

The cost is \$0.75 for each scoop.

- C) Find the fixed cost of the cone. (1 mark)

$$\text{Answer: } \$4.04 = 2(\$0.75) + F \leftarrow 0.5 \text{ mark for strategy}$$

$$\$2.54 = F \leftarrow 0.5 \text{ mark}$$

Sample 1

Restricted Response

(2.5 Marks)

- A) direct variation
- B) \$5.54
 $-\$4.04$
 \$1.50
- C) \$5.54
 $-\$4.04$
 \$1.50 \$4.04 - \$1.50 = \$2.54

Mark: 1 out of 2.5**Rationale:** - Correct solution in Part C (2 × 0.5 mark)**Sample 2**

Restricted Response

(2.5 Marks)

- A) $Y = kx + F$
- B) $\frac{1.5}{2} = \frac{k2}{k2}$
 $C = Ks + F$
 $5.54 = k3 + F$
 $4.04 = K1 + F$ $K = .75$
- C) $C = .75S + F$

Mark: 1.5 out of 2.5**Rationale:** - Correct type in Part A (0.5 mark)
 - Correct solution in Part B (2 × 0.5 mark)**Sample 3**

Restricted Response

(2.5 Marks)

- A) partial variation
- B) $5.54 = 2x + 4.04$
 $-4.04 \quad -4.04$
 $\frac{1.50}{3} = \frac{3x}{3}$
 $$.50 = x$
 \$.50 is the cost for one extra scoop.
- C) $\$4.04 - \$1.50 = \underline{\underline{\$2.54}}$

Mark: 2 out of 2.5**Rationale:** - Correct type in Part A (0.5 mark)
 - Correct strategy in Part B (0.5 mark)
 - Correct solution in Part C (follow-through error) (2 × 0.5 mark)

Question 16

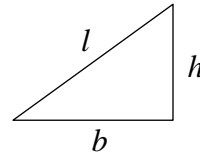
VI-F3

Restricted Response with Explanation

1.5 Marks

Bill is hired to build a skateboard ramp that is at least 5 feet in length. The formula that describes the relationship between the three sides is $l = \sqrt{b^2 + h^2}$ where

b is the base of the ramp
 h is the height of the ramp
 l is the length of the ramp



Determine if the ramp will meet the 5-foot requirement if Bill picks a base length of 3.5 feet and a height of 2.5 feet.

Answer: $l = \sqrt{b^2 + h^2}$

$$l = \sqrt{(3.5)^2 + (2.5)^2} \quad \leftarrow 0.5 \text{ mark for substitution}$$

$$l = \sqrt{12.25 + 6.25}$$

$$l = \sqrt{18.5}$$

$$l = 4.3 \text{ feet} \quad \leftarrow 0.5 \text{ mark}$$

No, the ramp is not long enough. ← 0.5 mark

Test Item and Marking Guide

Sample 1

Restricted Response with Explanation

(1.5 Marks)

$$l = \sqrt{b^2 + h^2}$$

$$l = \sqrt{3.5^2 + 2.5^2} = 9.75$$

Mark: 0.5 out of 1.5**Rationale:** - Correct calculation (follow-through error) (0.5 mark)**Sample 2**

Restricted Response with Explanation

(1.5 Marks)

$$l = \sqrt{(3.5^2)(2.5^2)}$$

$$= \sqrt{(12.25)(6.25)}$$

$$= \sqrt{76.56} = 8.75 \text{ ft. yes the ramp will meet the 5 foot requirement}$$

Mark: 1 out of 1.5**Rationale:** - Correct calculation (follow-through error) (0.5 mark)

- Correct solution (follow-through error) (0.5 mark)

Sample 3

Restricted Response with Explanation

(1.5 Marks)

$$3.5^2 + 2.5^2$$

$$= \sqrt{12.25 + 6.25}$$

$$= \sqrt{18.5}$$

$$4.3$$

Mark: 1 out of 1.5**Rationale:** - Correct calculations (2 × 0.5 mark)

Investments

Question 17

VI-D1

Open Response

(1 Mark)

The Bombay family has a financial plan for the future that includes a life insurance policy. Explain one benefit of a life insurance policy as part of a financial plan.

- Sample answers:*
- *A life insurance policy provides financial security for a family in the event of a death.*
 - *If the life insurance policy is a whole-life policy they will have a saving component to the policy.*

Test Item and Marking Guide

Sample 1

Open Response

(1 Mark)

**Life insurance you may pay monthly
depending on age, smoker or not and sex**

Mark: 0 out of 1

Rationale: - Incorrect response

Sample 2

Open Response

(1 Mark)

You have to decide how much you have to pay each month for your life insurance. Then you have to budget the cost of your life insurance into your financial plan.

Mark: 0 out of 1

Rationale: - Incorrect response

Sample 3

Open Response

(1 Mark)

How a life insurance policy fits into a financial plan is over time you keep putting money into an account so if anything ever happens your family is left with all that money.

Mark: 1 out of 1

Rationale: - Correct response

Question 18

VI-D3

Open Response

(1 Mark)

Explain why an investment advisor would suggest that a 20-year-old should consider a medium-risk to high-risk portfolio, while a 60-year-old should consider only a low-risk portfolio.

Sample answers: – Investments that can be left for a long period of time can wait through difficult periods.

– Older investors may not be able to afford to risk any part of their income.

Test Item and Marking Guide

Sample 1

Open Response

(1 Mark)

Because you will get more money and you won't have to pay more

Mark: 0 out of 1**Rationale:** - Incorrect response**Sample 2**

Open Response

(1 Mark)

Because a 20 year old would have the rest of his life to make up the investment if it failed. Where as old people are already retired and if they lose and there screwed.

Mark: 1 out of 1**Rationale:** - Correct response (1 mark)**Sample 3**

Open Response

(1 Mark)

A 20 year old has less money to put into an investment, so they should put their money into a high risk portfolio for a better chance of getting more money, where as a 60 year old has a lot of money they don't want to lose.

Mark: 1 out of 1**Rationale:** - Correct response (1 mark)

Question 19**VI-D7**

Restricted Response

(2.5 Marks)

Samson's Debt Equity Ratio (DER) is 37%, his Net Worth is \$185 000 and he has a mortgage of \$110 000.

A) Calculate Samson's total liabilities. (1.5 marks)

$$\text{Answer: } DER = \frac{\text{Total Liabilities} - \text{Mortgage}}{\text{Net Worth}} \times 100$$

$$37\% = \frac{\text{Total Liabilities} - \$110\,000}{\$185\,000} \times 100 \quad \left. \vphantom{\frac{\text{Total Liabilities} - \$110\,000}{\$185\,000}} \right\} \begin{array}{l} 0.5 \text{ mark} \\ \text{for substitution} \end{array}$$

$$0.37 = \frac{\text{Total Liabilities} - \$110\,000}{\$185\,000} \quad \left. \vphantom{\frac{\text{Total Liabilities} - \$110\,000}{\$185\,000}} \right\} \begin{array}{l} 0.5 \text{ mark} \\ \text{for strategy} \end{array}$$

$$\$68\,450 = \text{Total Liabilities} - \$110\,000$$

$$\text{Total Liabilities} = \$178\,450 \quad \leftarrow 0.5 \text{ mark}$$

OR

$$37\% \times \$185\,000 = \$68\,450 \quad \leftarrow 1 \text{ mark}$$

$$\$68\,450 + \$110\,000 = \$178\,450 \quad \leftarrow 0.5 \text{ mark}$$

B) Calculate Samson's total assets. (1 mark)

$$\text{Answer: } \text{Net Worth} = \text{Assets} - \text{Liabilities}$$

$$\$185\,000 = \text{Assets} - \$178\,450 \quad \leftarrow 0.5 \text{ mark for substitution}$$

$$\text{Assets} = \$363\,450 \quad \leftarrow 0.5 \text{ mark}$$

Sample 1

Restricted Response

(2.5 Marks)

A) $185\,000 \times 37\% = 68\,450$
 $68\,450 - 110\,000 = -41\,550$

B) $68\,450$

Mark: 1 out of 2.5**Rationale:** - Correct calculation of liabilities less the mortgage (1 mark)**Sample 2**

Restricted Response

(2.5 Marks)

A) **Networth = Assets - Total Liabilities**
 $185\,000 = 110\,000 - \text{Liabilities}$
 $75\,000 = \text{total Liabilities}$

B) $185\,000 = \text{Assets} - 75\,000$
 $260\,000 = \text{Assets}$

Mark: 1 out of 2.5**Rationale:** - Correct response in Part B (follow-through error) (1 mark)**Sample 3**

Restricted Response

(2.5 Marks)

A) $185\,000 \times .37 = \frac{x - 110\,000}{185\,000} \times 185\,000$ $110\,000 \times 0.8450 = x - 110\,000 + 110\,000$
 $178\,450 = x$
 total liabilities = \$178 450

B) $178\,450 + 185\,000 = x - 178\,450 + 178\,450$
 Total assets = \$363 450

Mark: 2.5 out of 2.5**Rationale:** - Correct responses (2.5 marks)

I. M. Dreman would like to go on a guided fishing trip to Lynn Lake, Manitoba. The cost will be \$1 200 for the trip. Her monthly net pay is \$2 297. Her monthly expenses are:

Monthly Expenses

Mortgage	\$1 005
Car Payment	\$208
Telephone	\$113
Utilities	\$100
Groceries	\$240
Clothing	\$70
Entertainment	\$40
Car Maintenance	\$76
Other	\$160

- A) Show that she cannot save the required funds in four months. (1.5 marks)

Answer:

$$\text{Total Expenses} = \$2\,012 \quad \leftarrow 0.5 \text{ mark}$$

$$\$2\,297 - \$2\,012 = \$285 \quad \leftarrow 0.5 \text{ mark}$$

$$285 \times 4 \text{ months} = \$1\,140 \quad \leftarrow 0.5 \text{ mark}$$

- B) Make a reasonable adjustment to her monthly expenses so she can go on the trip in four months. (1 mark)

Sample answers:

- reduce other by \$x
- reduce clothing by \$x
- reduce entertainment by \$x

Note to marker:

The amount reduced must be realistic and from non-fixed expenses.

Sample 1

Restricted Response

(2.5 Marks)

- A) expenses = 2 012 2 297 - 2 012 = \$285
- B) — 545 on mortgage for the month - 100 on groceries
 - 70 on clothing - 40 on entertainment - 160 on other

Mark: 1 out of 2.5**Rationale:** - Correct calculation of total expenses and monthly surplus (2 × 0.5 mark)**Sample 2**

Restricted Response

(2.5 Marks)

- A) $12/4 = \$300$
 OTHER MONTHLY EXPENSES = $\$2012$
 $= \$2310 =$ SHE WOULD NEED TO PAY EACH MONTH
 $- \$2297 =$ MONTHLY INCOME
 $\$13 =$ SHE IS SHORT $\$13$ WHICH MEANS SHE CANNOT SAVE ENOUGH MONEY FOR HER TRIP.
- B) SHE CAN TAKE TEN DOLLARS FROM HER ENTERTAINMENT AND TEN DOLLARS FROM HER OTHER EXPENSES TO PUT $\$20$ TOWARDS HER TRIP.

Mark: 2.5 out of 2.5**Rationale:** - Alternate solution in Part A (3 × 0.5 mark)
 - Correct response in Part B (1 mark)**Note to marker:** The error in calculating the short fall does not affect the conceptual nature of the answer.**Sample 3**

Restricted Response

(2.5 Marks)

- A) Expenses = \$2 012 pay = \$2 297 2 297 - 2 012 = \$285
 She only has \$285 left over each month even if she saves this money she still will not have enough.
- B) Groceries = \$225 Clothing = \$50 Entertainment = \$30 Other = \$130
 Expenses = 1 937 2 297 - 1 937 = 360 × 4 = \$1 440
 She can go on the trip and have a little money left over.

Mark: 2.5 out of 2.5**Rationale:** - Correct responses (2.5 marks)

Appendix A

Irregularities in Standards Tests

A GUIDE FOR LOCAL MARKING

The *Administration Manual* and the *Policies and Procedures for Standards Tests* are distributed to teachers and administrators to ensure consistency in the administration of standards tests. These documents deal with the issues of test material security and the Department's policy regarding adaptations and exemptions.

During the marking of standards tests, markers have occasionally encountered test booklets in which there have been irregularities. The following list provides examples of such irregularities, and is not intended to be exhaustive:

- Completely different penmanship in the same booklet
- Incoherent work with correct answer(s)
- Notes from a teacher indicating how he or she has assisted students during the test administration
- Student offering that he or she received teacher assistance for a question
- Student submitting work on unauthorized paper
- Evidence of plagiarism or cheating

If a student's mark on the test is 0% because he or she left the whole test booklet blank or answered with a combination of non-responses and inappropriate responses, please complete an *Irregular Test Paper Report* to confirm that the result is accurate (i.e., the student was not, in fact, absent or exempted).

Please note that student comments or responses indicating that the student may be at personal risk of being harmed or of harming others are personal safety issues. This type of student response requires an immediate and appropriate follow-up action at the school level. In this case, please ensure the Department is made aware that a follow-up has taken place by completing an *Irregular Test Paper Report*.

Except in the case of cheating or plagiarism where the result is a standards test mark of 0%, it is the responsibility of the division or the school to determine how they will proceed with irregularities. Once an irregularity has been confirmed, the marker prepares an *Irregular Test Paper Report* documenting the situation, the people contacted, and the follow-up. The original copy of this report is to be retained by the local jurisdiction and a copy is to be sent to the Instruction, Curriculum and Assessment Branch along with all other test materials.

Irregular Test Paper Report

Test: _____

Date marked: _____

Booklet ID No.: _____

Problem noted: _____

Question(s) affected: _____

Action taken or rationale for assigning marks: _____

Follow-up: _____

Decision: _____

Marker's Signature: _____

Principal's Signature: _____

<p>For Department Use Only—After Marking Complete</p> <p>Consultant: _____</p> <p>Date: _____</p>
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