grade 12
essential mathematics
achievement test

marking guide

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Marking Guidelines


**Please make no marks in the student test booklets.** If the booklets have marks in them, the marks need to be removed by departmental staff prior to sample marking should the booklet be selected.

The recommended procedure for scoring student responses is as follows:

1. Read the *Marking Guide*.
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 *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 Provincial Tests**

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

If a *Scoring Sheet* is marked with “0” and/or “NR” only (e.g., student was present but did not attempt any questions) please document this on the *Irregular Test Booklet Report*. 

Presentation of the Student Samples

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

Test Item and Marking Guide

<table>
<thead>
<tr>
<th>Question 2</th>
<th>Maximum Number of Marks Allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2 marks)</td>
<td></td>
</tr>
</tbody>
</table>

A homeowner wants to purchase comprehensive insurance with a $200 deductible. Her house is valued at $195,000 and is located in Area 2. Calculate the total cost of her insurance.

Answer:

Table value: $554 ← 1 mark

Total cost: $554 \times 10% = 55.40$  
$= 554 + 55.40$  
$= 609.40 ← 1 mark$

Note to marker: Award 1 mark if the correct table value is indicated.

Exemplar 1

$554 \times 0.10 = 55.40$  
$554 - 55.40 = 498.60$

Mark: 1 out of 2

Rationale:  
- Correct table value (1 mark)
- Incorrect answer
# Home Finance

## Question 1

(4 Marks)

David is planning on purchasing a house. The monthly mortgage payment will be $925 and the monthly heating costs will be $235. The annual property taxes will be $3180.

A) Calculate David’s Gross Debt Service Ratio (GDSR) if his gross monthly income is $3958. (3 marks)

**Answer:**

- **Monthly property taxes:** $3180 \div 12 = $265

  \[
  \text{GDSR} = \left(\frac{\text{payment} + \text{taxes} + \text{costs}}{\text{Gross monthly income}}\right) \times 100
  \]

  \[
  = \left(\frac{\$925 + \$265 + \$235}{\$3958}\right) \times 100 \quad \begin{cases} 
  0 \text{ marks for 1 correct substitution} \\
  1 \text{ mark for 2 or 3 correct substitutions} \\
  2 \text{ marks for 4 correct substitutions}
  \end{cases}
  \]

  \[
  = 36\% \quad \leftarrow 1 \text{ mark}
  \]

  **Note to marker:** Units are not required.

B) Explain whether David will be approved for the home mortgage. (1 mark)

**Answer:**

David will not be approved for the mortgage because his GDSR is above 32%. \( \leftarrow 1 \text{ mark} \)

**Note to marker:** Student must refer to 32%.
Exemplar 1
(4 Marks)

A) \[ \frac{925 + 235 + 3180}{3958} \times 100 = 109.65 \%
\]

B) he has higher than 32% so he'll be approved

Mark: 2 out of 4
Rationale: - Three correct substitutions in Part A (1 mark)
- Correct answer in part A (follow-through error) (1 mark)
- Incorrect explanation in Part B

Exemplar 2
(4 Marks)

A) \[ \frac{9.25 + 2.35 \times 1.13}{3958} \times 100 = 30\%
\]

B) He can afford it because it is under 32% if it was over he would not be able to afford it

Mark: 2 out of 4
Rationale: - Three correct substitutions in Part A (1 mark)
- Incorrect answer in part A (conceptual error—incorrect use of tax)
- Correct explanation in Part B (1 mark)

Exemplar 3
(4 Marks)

A) \$9.25 + \$2.35 = \$11.60
\[ \frac{1160}{3180} = 36.47\%
\]

B) It will not be approved because his % is over 32%

Mark: 3 out of 4
Rationale: - Two correct substitutions in Part A (1 mark)
- Correct answer in part A (follow-through error) (1 mark)
- Correct explanation in Part B (1 mark)
A homeowner wants to purchase comprehensive insurance with a $200 deductible. Her house is valued at $195 000 and is located in Area 2. Calculate the total cost of her insurance.

Answer:

Table value: $554 ← 1 mark

Total cost: $554 + 10%
= $554 + $55.40
= $609.40 ← 1 mark

Note to marker: Award 1 mark if the correct table value is indicated.
Exemplar 1  (2 Marks)

\[ 554 \times 0.10 = 55.4 \quad 554 - 55.4 = 498.60 \]

Mark: 1 out of 2  
Rationale: - Correct table value (1 mark)  
- Incorrect answer

Exemplar 2  (2 Marks)

\[ \$195000 \times 10\% = \$19500 \quad \$19500 + 554 = \$20054 \]

Mark: 1 out of 2  
Rationale: - Correct table value (1 mark)  
- Incorrect answer

Exemplar 3  (2 Marks)

\[ 554 \times 1.10 = \boxed{609.40} \]

Mark: 2 out of 2  
Rationale: - Correct table value (1 mark)  
- Correct answer (1 mark)
A couple has purchased a house in Brandon for their son to live in while he attends university. State 2 on-going expenses related to home ownership.

1. 

2. 

Sample answers:
- property taxes
- insurance
- utilities
- mortgage
- budgeting for unforeseen expenses

(2 × 1 mark)

Note to marker: Award a maximum of 1 mark for each line.
Exemplar 1

(2 Marks)

1. daily food

2. Gas to get to work and back, or bus money

Mark: 0 out of 2
Rationale: Two incorrect responses

Exemplar 2

(2 Marks)

1. Heat and water

2. Repairs-Furnace & burst pipes

Mark: 1 out of 2
Rationale: One correct response (line 1) (1 mark)
- Incorrect response (line 2) (one-time cost)

Exemplar 3

(2 Marks)

1. He'll have to pay utilities

2. He'll have to pay the property taxes

Mark: 2 out of 2
Rationale: Two correct responses (2 × 1 mark)
Sherry will need a $245,000 mortgage to purchase a house.

A) Determine her monthly mortgage payment if she gets an interest rate of 5.25% and amortizes the mortgage over 20 years. (2 marks)

Answer:

Table value: 6.71 ← 1 mark

Monthly mortgage payment: \( \frac{245000}{1000} \times 6.71 = 1643.95 \) ← 1 mark

Note to marker: Award 1 mark if the correct table value is indicated.

B) Calculate the total interest paid over the 20-year mortgage. (2 marks)

Answer:

Total payment: \( 1643.95 \times 12 \times 20 = 394,548.00 \) ← 1 mark

Total interest: \( 394,548.00 - 245,000.00 = 149,548.00 \) ← 1 mark
**Exemplar 1**

(4 Marks)

A) \( \frac{245000 \times 10525}{240} = 1074.42 \)

B) \( 25782.50 - 245000 = 12862.50 \)

Mark: 1 out of 4

Rationale:  
- Incorrect table value in Part A (table value not indicated)  
- Incorrect answer in Part A  
- Incorrect total payment in Part B  
- Correct total interest in Part B (follow-through error) (1 mark)

**Exemplar 2**

(4 Marks)

A) \( \frac{245000}{20} \times \frac{12250}{1.2} = 1020.83 \)

B) \( 6.71 \times 12 \times 20 = 1610.40 \)

Mark: 1 out of 4

Rationale:  
- Correct table value in Part A (1 mark)  
- Incorrect answer in Part A  
- Incorrect total payment in Part B  
- Incorrect total interest in Part B

**Exemplar 3**

(4 Marks)

A) \( \frac{245000}{1000} \times 6.71 = 1643.95 \)

B) \( 1643.95 \times 240 = 394548 \)

Mark: 3 out of 4

Rationale:  
- Correct table value in Part A (1 mark)  
- Correct monthly mortgage payment in Part A (1 mark)  
- Correct total payment in Part B (1 mark)  
- Incorrect total interest in Part B
State 2 costs related to preventative home maintenance.

1. ____________________________________________

2. ____________________________________________

Sample answers:

- furnace inspection
- change air filter on furnace
- re-shingle roof before it starts leaking

(2 x 1 mark)

Note to marker: Award a maximum of 1 mark for each line.
Exemplar 1 (2 Marks)

1. Replace downspouts

2. The roof is leaking after a storm has come.

Mark: 1 out of 2
Rationale: - One correct response (line 1) (1 mark)
- Incorrect response (line 2) (emergency repair)

Exemplar 2 (2 Marks)

1. home inspection

2. the cost of re-shingling a roof

Mark: 2 out of 2
Rationale: - Two correct responses (2 × 1 mark)

Exemplar 3 (2 Marks)

1. if you live in a place where earth quaks happen often
   you could earth quak proof your heavier items (it’s a
   thing I swear)

2. flood proof your doors and windows to keep basements
   from flooding

Mark: 2 out of 2
Rationale: - Two correct responses (2 × 1 mark)
A house and land have an assessed value of $225 000. The portion percentage is 45%. The municipality has a tax rate of 32 mills. Calculate the general municipal tax.

**Answer:**

*Total portioned assessment:* 
\[
\text{Total portioned assessment: } \$225\ 000 \times 0.45 \\
= \$101\ 250 \quad \leftarrow 1 \text{ mark}
\]

*Municipal tax:* 
\[
\text{Municipal tax: } \$101\ 250 \times \frac{32}{1000} \\
= \$3240 \quad \leftarrow 1 \text{ mark}
\]

OR

*Municipal tax:* 
\[
\text{Municipal tax: } \$225\ 000 \times 0.45 \times \frac{32}{1000} \quad \leftarrow 1 \text{ mark} \\
= \$3240 \quad \leftarrow 1 \text{ mark}
\]
Exemplar 1

\[
\frac{101,250}{225,000} \times 1000 = \$450
\]

Mark: 1 out of 2
Rationale: - Correct total portioned assessment (1 mark)
- Incorrect municipal tax

Exemplar 2

\[
0.45 \times \frac{101,250}{1000} = \frac{32}{1000} = \$3240.00
\]

Mark: 2 out of 2
Rationale: - Correct total portioned assessment (1 mark)
- Correct municipal tax (1 mark)

Exemplar 3

\[
3.2 \times 0.45 \div 1000 = \\
14.4 \div 1000 = 0.0144 \\
0.0144 \times 225,000 = 3240
\]

Mark: 2 out of 2
Rationale: - Correct total portioned assessment (1 mark)
- Correct municipal tax (1 mark)
Emerito has to write a math quiz at the end of every week. Each quiz is out of 10 marks. His marks on the last 6 weeks’ quizzes were as follows:

4 7 8 6 8 7

State the probability that a randomly chosen quiz has a mark of 70% or more.

*Answer:*

\[ \frac{4}{6} \text{ or } 0.67 \text{ or } 67\% \text{ or } 4 \text{ out of } 6 

*Note to marker: Accept equivalent representations.*
Exemplar 1
(1 Mark)

6 quizzes
2 have marks of 70%
probability = 2/6 or it can be reduced to 1/3

Mark: 0 out of 1
Rationale: Incorrect answer

Exemplar 2
(1 Mark)

\[
\frac{4}{6} = \frac{2}{3}
\]

Mark: 1 out of 1
Rationale: Correct answer (1 mark)

Exemplar 3
(1 Mark)

\[
\frac{4}{10} \times 100 = 40%
\]
\[
\frac{7}{10} \times 100 = 70%
\]
\[
\frac{8}{10} \times 100 = 80%
\]
\[
\frac{6}{10} \times 100 = 60%
\]
\[
\frac{8}{10} \times 100 = 80%
\]
\[
\frac{7}{10} \times 100 = 70%
\]

Mark: 1 out of 1
Rationale: Correct answer (1 mark)
State 63% as a fraction and as a decimal.

Fraction: ____________________

Decimal: ____________________

*Answer:*

\[
\frac{63}{100} \quad \leftarrow 1 \text{ mark}
\]

Fraction: 63

Decimal: 0.63 \leftarrow 1 \text{ mark}
Exemplar 1

(2 Marks)

\[ \frac{63}{100} = \frac{21}{25} \] ?

Fraction: __________________

Decimal: ________

Mark: 1 out of 2
Rationale: - Incorrect answer (fraction not clearly indicated)
- Correct answer (decimal) (1 mark)

Exemplar 2

(2 Marks)

\[ \frac{189}{3} \div \frac{63}{1} \]

Fraction: __________________

Decimal: ________

Mark: 1 out of 2
Rationale: - One correct answer (decimal) (1 mark)

Exemplar 3

(2 Marks)

\[ \frac{63}{100} \]

Fraction: __________________

Decimal: \[ \frac{63}{100} = 0.63 \]

Mark: 2 out of 2
Rationale: - Two correct answers (2 x 1 mark)
A company wishes to advertise a new type of breakfast cereal by sending out small samples through the mail to potential customers. There is a 7% chance that a potential customer will like the cereal and buy a full box for $6.00.

A) Calculate the expected value for the company if the samples cost $0.40 each to produce and distribute. (3 marks)

*Answer:*


gain = $6.00 – $0.40

= $5.60

\[ EV = P(\text{win}) \times \text{gain} – P(\text{lose}) \times \text{loss} \]

\[ = (0.07)(5.60) – (0.93)(0.40) \]

\[ = 0.02 \leftarrow 1 \text{ mark} \]

*OR*

*Average earnings:*

\[ (0.07)(6.00) \]

\[ = 0.42 \leftarrow 2 \text{ marks} \]

\[ EV = 0.42 – 0.40 \]

\[ = 0.02 \leftarrow 1 \text{ mark} \]

B) Justify whether the company should try this form of advertising based on your answer in Part A. (1 mark)

*Answer:*

The company should advertise this way since the EV > 0.

*Note to marker: Justification must refer to positive or negative expected value.*
Exemplar 1

A) \((7) \times (6.00) - (93) \times (0.40)\)
\[EV = $4.8\]

B) No because there is a small % of customers that will like the cereal and buy full box and expected value is low.

Mark: 1 out of 4
Rationale: - One correct substitution in Part A (0 marks)
- Correct answer in Part A (follow-through error) (1 mark)
- Incorrect response in Part B

Exemplar 2

A) \[EV = 0.07 \times 4 - 0.93 \times 4\]
\[0.0294 - 3.72\]
\[EV = -3.69\]

B) Due to the expected value being below 0, no, they will lose money if they try.

Mark: 2 out of 4
Rationale: - Two correct substitutions in Part A (1 mark)
- Incorrect answer in Part A
- Correct response in Part B (1 mark)

Exemplar 3

A) \((5.60 \times 0.07) - (0.40 \times 0.93) = 0.02\)
\[0.392 - 0.372\]

B) They shouldn’t because the expected value is very low

Mark: 3 out of 4
Rationale: - Four correct substitutions in Part A (2 marks)
- Correct answer in Part A (1 mark)
- Incorrect response in Part B
State the probability of a baseball player hitting a ball given that the odds for this event are $1:4$.

*Answer:*

\[
\frac{1}{5} \quad \text{or} \quad 0.2 \quad \text{or} \quad 20\% \quad \text{or} \quad 1 \text{ out of 5}
\]

*Note to marker: Accept equivalent representations.*
Exemplar 1

# of ways to win = 1
# of ways to lose = 4
Odds \rightarrow 1: 4
\frac{1}{4} = 0.25\%

Mark: 0 out of 1
Rationale: Incorrect answer

Exemplar 2

\frac{1}{5} \times 100 = 20\%

Mark: 1 out of 1
Rationale: Correct answer (1 mark)

Exemplar 3

a baseball player will hit a fly ball 1 in 5 times

Mark: 1 out of 1
Rationale: Correct answer (1 mark)
Ten cards, numbered 1 to 10, are placed in a bag. A student pulls a card from the bag, records the number, and puts the card back in the bag. The student repeats this process 9 more times. The table below shows the results.

| 3 | 6 | 8 | 4 | 4 | 1 | 10 | 6 | 2 | 5 |

A) State the experimental probability of a student pulling out a card with a number greater than 7. (1 mark)

*Answer:*

\[
\frac{2}{10} \text{ or } 0.20 \text{ or } 20\% \text{ or } 2 \text{ out of } 10 \text{ or } 2:10
\]

B) State the theoretical probability of a student pulling out a card with a number greater than 7. (1 mark)

*Answer:*

\[
\frac{3}{10} \text{ or } 0.30 \text{ or } 30\% \text{ or } 3 \text{ out of } 10 \text{ or } 3:10
\]

*Note to marker: Accept equivalent representations.*
Exemplar 1

(2 Marks)

A) \[ \frac{2}{10} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} \]
\[ = \frac{10}{5} = 2 \]

B) \[ \frac{1}{5} = .20 = 20\% \]
\[ P = 20\% \]

Mark: 0 out of 2
Rationale: - Incorrect answer in Part A
- Incorrect answer in Part B

Exemplar 2

(2 Marks)

A) \[ \frac{2}{10} = \frac{2}{10} = \frac{4}{20} = 0.2 \]

B) 2:10

Mark: 1 out of 2
Rationale: - Correct answer in Part A (1 mark)
- Incorrect answer in Part B

Exemplar 3

(2 Marks)

A) The experimental probability of a student pulling out a card with a number greater than 7 is \( \frac{3}{10} \) or \( \frac{1}{5} \).

B) The theoretical probability of a student pulling out a card with a number greater than 7 is \( \frac{3}{10} \).

Mark: 2 out of 2
Rationale: - Correct answer in Part A (1 mark)
- Correct answer in Part B (1 mark)
Choose the letter that best completes the statement below.

The probability of a tadpole surviving to become an adult frog is 90%. The odds against this happening are:

a) 1 : 9
b) 9 : 1
c) 1 : 10
d) 10 : 1

*Answer: _____a)______*
This page was intentionally left blank.
Question 13 (4 Marks)

State 2 advantages and 2 disadvantages of buying a used car rather than buying a similar new car.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>

**Sample answers:**

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>cheaper to buy</td>
<td>more potential problems</td>
</tr>
<tr>
<td>cheaper to insure</td>
<td>could be no warranty</td>
</tr>
<tr>
<td>less taxes (if private)</td>
<td>fewer safety features</td>
</tr>
<tr>
<td>less depreciation loss</td>
<td>fewer technological features (e.g., built-in DVD)</td>
</tr>
<tr>
<td></td>
<td>you don’t know how it was driven</td>
</tr>
</tbody>
</table>

(4 × 1 mark)

*Note to marker:* Award a maximum of 1 mark for each box.
## Exemplar 1

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It immediately becomes yours to modify.</td>
<td>1. Once it becomes yours any damage or malfunctions won’t be covered.</td>
</tr>
<tr>
<td>2. You don’t need to worry about payments.</td>
<td>2. You aren’t guaranteed anything.</td>
</tr>
</tbody>
</table>

Mark: 0 out of 4  
Rationale: Four incorrect responses

## Exemplar 2

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is cheaper and might be in a good condition.</td>
<td>1. Might be a stolen car being sold.</td>
</tr>
<tr>
<td>2. You can just pay them up front and own the car.</td>
<td>2. It might need some maintenance repair.</td>
</tr>
</tbody>
</table>

Mark: 3 out of 4  
Rationale: Three correct responses (no mark awarded for Advantage 2) (3 marks)

## Exemplar 3

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prices will be lower</td>
<td>1. There is no warranty</td>
</tr>
<tr>
<td>2. Pay taxes on its valued price</td>
<td>2. The car could have a lot of problems</td>
</tr>
</tbody>
</table>

Mark: 4 out of 4  
Rationale: Four correct responses (4 marks)
Mark wants to buy a new truck worth $25 500. The dealership offers him a trade-in value of $3500 for his used car. Calculate the purchase price of the new truck after taxes.

Answer:

Purchase price before taxes: \(25 500 - 3500\)
\[= 22 000\] ← 1 mark

Purchase price after taxes: \(22 000 \times 1.13\)
\[= 24 860\] ← 1 mark
**Exemplar 1**

\[
\begin{align*}
25500 & \quad - \quad 3500 \\
21500 & \quad \times \quad 1.13 \\
 & \quad = \quad $24295
\end{align*}
\]

Mark: 1 out of 2  
Rationale:  - Incorrect purchase price before taxes  
- Correct purchase price after taxes (follow-through error) (1 mark)

**Exemplar 2**

\[
\begin{align*}
\text{Taxes} & \quad $25500 \times 0.13 = \$3315 \\
\$25500 + \$3315 - \$3500 & \quad = \quad \$25315
\end{align*}
\]

Mark: 1 out of 2  
Rationale:  - Incorrect purchase price before taxes  
- Correct purchase price after taxes (follow-through error) (1 mark)

**Exemplar 3**

\[
\begin{align*}
\$25500 - 3500 & \quad = \quad \$22000 \\
\text{tax} \rightarrow \$22000 \times 0.13 & \quad = \quad \$2860 \\
\$22000 + \$2860 & \quad = \quad \$24860
\end{align*}
\]

Mark: 2 out of 2  
Rationale:  - Correct purchase price before taxes (1 mark)  
- Correct purchase price after taxes (1 mark)
State 1 way to decrease the total amount paid to finance the car you have decided to buy.

Sample answers:

- increase down payment
- decrease amortization period
- lower interest rate
- buy it outright
Exemplar 1  

get a cheaper car

Mark: 0 out of 1  
Rationale: Incorrect response

Exemplar 2  

don't pick a high insurance rate to pay for your car

Mark: 0 out of 1  
Rationale: Incorrect response

Exemplar 3  

Constantly seek new rates and charges to apply them to the vehicles financing charges.

Mark: 0 out of 1  
Rationale: Incorrect response
Nancy is purchasing a new vehicle for $26,500 after taxes at 4.5% for 5 years.

<table>
<thead>
<tr>
<th>Interest Rate (%)</th>
<th>Years to Repay Loan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4.00</td>
<td>85.15</td>
</tr>
<tr>
<td>4.25</td>
<td>85.26</td>
</tr>
<tr>
<td>4.50</td>
<td>85.38</td>
</tr>
<tr>
<td>4.75</td>
<td>85.49</td>
</tr>
<tr>
<td>5.00</td>
<td>85.61</td>
</tr>
<tr>
<td>5.25</td>
<td>85.72</td>
</tr>
<tr>
<td>5.50</td>
<td>85.84</td>
</tr>
<tr>
<td>5.75</td>
<td>85.95</td>
</tr>
<tr>
<td>6.00</td>
<td>86.07</td>
</tr>
</tbody>
</table>

A) Calculate Nancy's monthly payment. (2 marks)

Answer:

Table value: 18.64 ← 1 mark

Monthly payment: \( \frac{26500}{1000} \times 18.64 \)

\[ = 493.96 \] ← 1 mark

B) At another financial institution Nancy is offered a loan with a monthly payment of $400 for 7 years. Justify which option Nancy should choose. (1 mark)

Sample answers:

- The first option because the total paid is less.
- The second option because the monthly payment is less.

Note to marker: Total paid: Option 1 $29,637.60

Option 2 $33,600.00

Monthly: Option 1 $493.96

Option 2 $400.00
Exemplar 1

(3 Marks)

A) \[
\frac{26.500 \times 18.64}{1000} = 493.95 \times 12 \times 5 = $2963.76
\]

B) \[
400 \times 12 \times 7 = $33,600 \text{ which is greater then $2963.76}
\]

Mark: 1 out of 3

Rationale: - Correct table value in Part A (1 mark)
- Incorrect answer in Part A (monthly payment not clearly indicated)
- Incorrect response in Part B (option not clearly indicated)

Exemplar 2

(3 Marks)

A) \[
18.64 \times 26.500 \div 1000 = $493.96
\]

B) \[
400 \times 12 \times 7 = 33,600
\]

She should choose the first option.

Mark: 2 out of 3

Rationale: - Correct table value in Part A (1 mark)
- Correct monthly payment in Part A (1 mark)
- Incorrect response in Part B (no justification)

Exemplar 3

(3 Marks)

A) \[
\frac{26.500 \times 18.64}{1000} = $493.96
\]

\[
\frac{493.96 \times 12 \times 5}{3137.60 - 26.500} = 3137.6 \leftarrow \text{ interest}
\]

\[
400 \times 12 \times 7 = 33,600 - 26,500 = 7100
\]

B) the first option is better because in the end she will be paying less interest.

Mark: 3 out of 3

Rationale: - Correct value in Part A (1 mark)
- Correct monthly payment in Part A (1 mark)
- Correct response in Part B (1 mark)
On average, the fuel economy of Jasmine’s vehicle is 8.5 L/100 km. In the past month, Jasmine has travelled a total of 2800 km.

A) Calculate the total litres of gas Jasmine’s vehicle used for the month based on the average fuel economy. (2 marks)

\[
\frac{8.5 \text{ L}}{100 \text{ km}} = \frac{L}{2800 \text{ km}} \quad \leftarrow 1 \text{ mark for process}
\]

Fuel used in litres = 238 L \quad \leftarrow 1 \text{ mark}

\text{OR}

\[
\frac{8.5 \text{ L}}{100 \text{ km}} \times 2800 \text{ km} \quad \leftarrow 1 \text{ mark for process}
\]

= 238 L \quad \leftarrow 1 \text{ mark}

\text{Note to marker: Units are not required.}

B) State the total cost of fuel used if it costs $1.23 per litre. (1 mark)

\text{Answer:}

\[
\text{Total cost: } 238 \times $1.23/L
\]

= $292.74 \quad \leftarrow 1 \text{ mark}
**Exemplar 1**

(3 Marks)

A) \(238 \text{ L}\)

B) \(238 \times 1.23 = \$242.74\)

Mark: 1 out of 3
Rationale:  
- Correct litres used in Part A (1 mark)  
- Incorrect answer in Part B

**Exemplar 2**

(3 Marks)

A) \(8.5 \text{ L/100km}\)

\[
\frac{238 \text{ L}}{2800 \text{ km}}
\]

B) \(238 \times 1.23 = \$292.72\)

Mark: 2 out of 3
Rationale:  
- Correct process in Part A (1 mark)  
- Correct litres used in Part A (1 mark)  
- Incorrect answer in Part B

**Exemplar 3**

(3 Marks)

A) \(8.5 \times 28 = 238 \text{ L used}\)

B) \(238 \times 1.23 = \$292.74\)

Mark: 3 out of 3
Rationale:  
- Correct process in Part A (1 mark)  
- Correct litres used in Part A (1 mark)  
- Correct answer in Part B (1 mark)
Choose the letter that best completes the statement below.

When insuring a vehicle in Manitoba, the factor that does **not** affect your premium is:

a) your driving record  
b) your gender  
c) the type of vehicle  
d) the use of vehicle

*Answer: b*)
This page was intentionally left blank.
Bryan’s 20-year-old vehicle has broken down. He therefore pushes it into a repair shop in Manitoba. His car needs to have the radiator ($500) and timing belt ($450) replaced. The labour cost is $120 per hour and it takes 4 hours to repair his vehicle. Calculate how much it costs to have his vehicle repaired after taxes.

**Answer:**

**Parts:**

\[ $500 + $450 = $950 \] ← 1 mark

**Labour:**

\[ $120 \times 4 = $480 \] ← 1 mark

**Subtotal:**

\[ $950 + $480 = $1430 \] ← 1 mark

**Total with taxes:**

\[ $1430 \times 1.13 = $1615.90 \] ← 1 mark
Exemplar 1

$120 \times 4 = 480$
$500 \times 1.13 = 565$
$450 \times 1.13 = 508.50$

\[ \boxed{\$1553.50} \]

Mark: 3 out of 4
Rationale: Incorrect calculation of taxes (3 marks)

Exemplar 2

\[ 1073.50 + 480 = \boxed{\$1553.50} \]

Mark: 3 out of 4
Rationale: Correct parts calculation (1 mark)
Correct labour calculation (1 mark)
Correct subtotal (follow-through errors) (1 mark)
Incorrect total with taxes

Exemplar 3

\[ 500 \\
450 \\
(4) \times 120 = 1430 \\
1430 + 185.90 = 1615.90 \]

Mark: 4 out of 4
Rationale: Correct answer (4 × 1 mark)
Martha is building a triangular ramp over a drainage pipe. She is considering the following designs:

A) Choose the letter that best completes the statement below. (1 mark)

The type of triangular ramp that allows a wheelbarrow to be pushed smoothly over the pipe with the least amount of effort from either side is:

a) acute  
b) equilateral  
c) obtuse  
d) right

Answer: ___ c) ___

B) Justify why this type of triangle should be used for the ramp, making reference to the base angles. (1 mark)

Answer:

An obtuse triangle provides the smallest base angles and will be the easiest over which to push the wheelbarrow.
**Exemplar 1**

(2 Marks)

A) 

B) **It takes less effort to push it up a $10^\circ$ angle than an $80^\circ$ angle. A right angle wouldn't even be possible.**

Mark: 1 out of 2  
Rationale:  
- Incorrect answer in Part A  
- Correct justification in Part B (1 mark)

**Exemplar 2**

(2 Marks)

A) 

B) **because an obtuse triangle’s point isn’t upright so it would allow the wheelbarrow to have a smoother ride.**

Mark: 1 out of 2  
Rationale:  
- Correct answer in Part A (1 mark)  
- Incorrect justification in Part B

**Exemplar 3**

(2 Marks)

A) 

B) **The ramp should be in the shape of an obtuse triangle because it will be easier to push the wheelbarrow.**

Mark: 1 out of 2  
Rationale:  
- Correct answer in Part A (1 mark)  
- Incorrect justification in Part B (no reference to base angles)
A manufacturer of solar panels states that panels should be installed at a 70° angle with the horizontal base of the roof. Calculate the length of the roof as identified in the diagram.

Diagram is not to scale

Answer:

Base of the roof: $26 \text{ ft} + 2 \text{ ft} + 2 \text{ ft} = 30 \text{ ft} \quad \leftarrow 1 \text{ mark}$

$x^2 = 8^2 + 30^2 - 2(8)(30) \cos 70^\circ \quad \leftarrow 1 \text{ mark for all correct substitutions}$

$x^2 = 64 + 900 - 480 \cos 70^\circ$

$x^2 = \sqrt{799.83}$

$x = 28.3 \text{ ft} \quad \leftarrow 1 \text{ mark}$

Note to marker: Allow for various roundings. Units are not required.
**Exemplar 1**

(3 Marks)

\[ a^2 = 8^2 + 30^2 - 2(8)(30)\cos 70 \]
\[ a^2 = 64 + 900 - 476.42 \]
\[ a^2 = 964 - 476.42 \]
\[ a^2 = \sqrt{487.58} \]
\[ a = 22.08 \text{ ft} \]

**Note**: 2 out of 3

**Justification**:
- Correct calculation of the base of the roof (1 mark)
- Correct substitution (1 mark)
- Incorrect answer

---

**Exemplar 2**

(3 Marks)

\[ a^2 = b^2 + c^2 - 2bc \cos A \]
\[ a^2 = 8^2 + 26^2 - (2)(8)(26)\cos 70 \]
\[ a^2 = 64 + 676 - 416 \cos 70 \]
\[ a^2 = 740 - 416 \cos 70 \]
\[ \sqrt{a^2} = 597.72 \]
\[ a = 24.45 \text{ ft} \]

**Mark**: 2 out of 3

**Rationale**:
- Incorrect calculation of the base of the roof
- Correct substitution (follow-through error) (1 mark)
- Correct answer (follow-through error) (1 mark)

---

**Exemplar 3**

(3 Marks)

\[ a^2 = b^2 + c^2 - 2bc \cos A \]
\[ a^2 = 64 + 900 - 2 \times 8 \times 30 \]
\[ a^2 = 964 - 480 \cos 70 \]
\[ a = 28.28 \text{ ft} \]

**Mark**: 3 out of 3

**Rationale**:
- Correct calculation of base of the roof (1 mark)
- Correct substitution (1 mark)
- Correct answer (1 mark)
Canada’s Centennial Maple Leaf is made up of 11 equilateral triangles.

A) State the measure of angle A. (1 mark)

Answer:

\[
\frac{180^\circ}{3} = 60^\circ \quad \leftarrow 1 \text{ mark}
\]

Note to marker: Units are not required.

B) State the measure of angle B. (1 mark)

Answer:

\[
180^\circ - 60^\circ = 120^\circ \quad \leftarrow 1 \text{ mark}
\]

Note to marker: Units are not required.

C) State the type of quadrilateral created by combining triangles x and y. (1 mark)

Answer:

Rhombus or Parallelogram
**Exemplar 1**

(3 Marks)

A) 

B) 

C) *a parallelogram*

Mark: 1 out of 3  
Rationale: - Correct response in Part C (1 mark)

**Exemplar 2**

(3 Marks)

A) 60°

B) \(180°-60°=120°\)

C) *diamond*

Mark: 2 out of 3  
Rationale: - Correct answer in Part A (1 mark)  
- Correct answer in Part B (1 mark)  
- Incorrect response in Part C

**Exemplar 3**

(3 Marks)

A) 60°

B) \(60°\times2=120°\)

C) *Diamond or kite*

Mark: 2 out of 3  
Rationale: - Correct answer in Part A (1 mark)  
- Correct answer in Part B (1 mark)  
- Incorrect response in Part C
Squares and parallelograms are geometric figures. Using properties of polygons:

A) Explain why a square is a parallelogram. (1 mark)

Sample answers:
- A square has 2 sets of parallel sides.
- Diagonals bisect each other.
- Opposite angles are equal.
- Adjacent angles are supplementary.

B) Explain why a parallelogram is not always a square. (1 mark)

Sample answers:
- The adjacent sides of a parallelogram do not need to be of equal lengths.
- The interior angles of a parallelogram do not need to be 90°.
- Diagonals do not need to be perpendicular bisectors.
Exemplar 1

A) because the sides opposite from each other are almost the same

B) 1 parallel lines might be the same but the other might not be

Mark: 1 out of 2
Rationale: - Incorrect response in Part A
- Correct response in Part B (1 mark)

Exemplar 2

A) because all opposite sides are parallel to each other

B) Rectangles can be a parallelogram because the sides opposite from each other are the same size

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

Exemplar 3

A) Because its sides run parallel to each other.

B) Because you can have parallelograms that don’t form 90° angles to make a square. Like a rhombus.

Mark: 2 out of 2
Rationale: - Correct response in Part A (1 mark)
- Correct response in Part B (1 mark)
Andrew and Ben are building a zip line across a ravine.

Calculate the length of the zip line.

**Answer:**

*Third angle: $180^\circ - 120^\circ - 20^\circ$

$$= 40^\circ$$ ← 1 mark

$$\frac{\sin 120^\circ}{x} = \frac{\sin 40^\circ}{35}$$ ← 1 mark for all correct substitutions

$$x = 47.16 \text{ m}$$ ← 1 mark

**Note to marker:** Allow for various roundings. Units are not required.
**Exemplar 1**

\[180 - 120 - 20 = 40\]

Mark: 1 out of 3  
Rationale: Correct third angle (1 mark)

**Exemplar 2**

\[
\frac{a}{\sin A} = \frac{b}{\sin B} \\
\frac{a}{\sin 20^\circ} = \frac{35}{\sin 35^\circ} \\
a = \frac{(35^\circ)(\sin 20^\circ)}{\sin 35^\circ} = 8.8231102 \\
\therefore a = 8.8 \text{ m}
\]

Mark: 1 out of 3  
Rationale: Incorrect third angle (not calculated)  
- Incorrect substitution  
- Correct final answer (follow-through error) (1 mark)

**Exemplar 3**

\[
\frac{\sin A}{a} = \frac{\sin B}{b} \\
\frac{35}{\sin 40^\circ} = \frac{b}{\sin 120^\circ} \\
\sin 120^\circ \times 54.45 = \frac{b}{\sin 120^\circ} \\
47.155 = b
\]

Mark: 3 out of 3  
Rationale: Correct third angle (1 mark)  
- Correct substitution (1 mark)  
- Correct answer (1 mark)
Consider a regular decagon.

A) State the sum of all interior angles. (1 mark)

Answer:

\[ S = 180° (n - 2) \]
\[ = 180° (10 - 2) \]
\[ = 1440° \quad \leftarrow 1 \text{ mark} \]

Note to marker: Units are not required.

B) State the measure of an interior angle for the regular decagon. (1 mark)

Answer:

\[ \text{Interior angle:} \]
\[ \frac{1440°}{10} \]
\[ = 144° \quad \leftarrow 1 \text{ mark} \]

Note to marker: Units are not required.
Exemplar 1 (2 Marks)

A) \( S = 180^\circ (n-2) \)

B) \( 180^\circ \div 10 = 18^\circ \)

Mark: 0 out of 2
Rationale: - Incorrect answer in Part A
- Incorrect answer in Part B

Exemplar 2 (2 Marks)

A) \( 180^\circ \)

B) \( 18^\circ \)

Mark: 1 out of 2
Rationale: - Incorrect answer in Part A
- Correct answer in Part B (follow-through error) (1 mark)

Exemplar 3 (2 Marks)

A) \( 360 \)

B) \( S(n) = 180(n-2) \)

\( S(10) = 180(10-2) \)

Mark: 1 out of 2
Rationale: - Incorrect answer in Part A
- Correct answer in Part B (1 mark)
Question 26 (2 Marks)

Refer to the following diagram of a speedometer.

A) State the precision of the speedometer. (1 mark)

\[ \text{Answer:} \]

\[ 5 \text{ km/h} \]

B) State the uncertainty of the speedometer. (1 mark)

\[ \text{Answer:} \]

\[ 2.5 \text{ km/h} \]

\[ \text{Note to marker: } \pm \text{ not required. Units are not required.} \]
**Exemplar 1** (2 Marks)

A) \( p=1 \text{ km/h} \)

B) \( o=0.5 \text{ km/h} \)

Mark: 1 out of 2
Rationale: - Incorrect answer in Part A
- Correct answer in Part B (follow-through error) (1 mark)

**Exemplar 2** (2 Marks)

A) \( 5 \text{ km/h} \)

B) \( 25 \text{ km/h} \)

Mark: 1 out of 2
Rationale: - Correct answer in Part A (1 mark)
- Incorrect answer in Part B

**Exemplar 3** (2 Marks)

A) \( 5 \text{ km/h} \)

B) \( 5 \text{ km/h} \pm 2.5 \text{ km/h} \)

Mark: 1 out of 2
Rationale: - Correct answer in Part A (1 mark)
- Incorrect answer in Part B (correct answer not clearly indicated)
Johnny needs to measure 1¾ cups of water to make bread. Justify which of the following measuring cups is more precise.

**Answer:**

*Johnny should choose cup A because it has smaller increments shown which makes it more precise.*
Exemplar 1

Mark: 0 out of 1
Rationale: - No justification provided

Exemplar 2

Cup “A” because it is precise to the nearest \( \frac{1}{2} \) cup, whereas cup “B” is only precise to the nearest cup.

Mark: 1 out of 1
Rationale: - Correct justification (1 mark)

Exemplar 3

Cup A because it gives the half and quarters markings

Mark: 1 out of 1
Rationale: - Correct justification (1 mark)
Jill buys a roll of wallpaper. She uses a measuring device with a precision of 1 cm to measure and cut a 95 cm piece.

A) State the maximum length of the cut piece of wallpaper. (1 mark)

\[ \text{Answer:} \]
\[ 95.5 \text{ cm} \]

B) State the minimum length of the cut piece of wallpaper. (1 mark)

\[ \text{Answer:} \]
\[ 94.5 \text{ cm} \]

\[ \text{Note to marker: Units are not required.} \]
Exemplar 1
(2 Marks)

A) \( 95 \text{ cm} \pm 0.5 \text{ mm} \)

B) \( 90 \text{ cm} \pm 0.5 \text{ mm} \)

Mark: 0 out of 2
Rationale: - Incorrect answer in Part A
- Incorrect answer in Part B

Exemplar 2
(2 Marks)

A) \( 95 \text{ cm} + 1 \text{ cm} = 96 \text{ cm} \)

B) \( 95 \text{ cm} - 1 \text{ cm} = 94 \text{ cm} \)

Mark: 1 out of 2
Rationale: - Incorrect answer in Part A
- Correct answer in Part B (follow-through error) (1 mark)

Exemplar 3
(2 Marks)

A) \( \min = 95 - 0.5 = 94.5 \text{ cm} \)

\[
\begin{align*}
\max & = 95 + 0.5 = 95.5
\end{align*}
\]

B) \( \max = 95 - 0.5 = 94.5 \text{ cm} \)

Mark: 2 out of 2
Rationale: - Correct answer in Part A (1 mark)
- Correct answer in Part B (1 mark)
Colin has a bucket, marked in 1000 mL increments, that he fills with 4000 mL of liquid fertilizer. He wants to remove 300 mL of the liquid fertilizer. He uses a 1000 mL container marked in 100 mL increments.

Calculate the remaining amount of mixture that will be in the bucket in the format:

measurement ± uncertainty

**Answer:**

\[
\begin{align*}
4000 \text{ mL} & \pm 500 \text{ mL} \\
- 300 \text{ mL} & \pm 50 \text{ mL} \\
3700 \text{ mL} & \pm 550 \text{ mL}
\end{align*}
\]

\[\frac{1 \text{ mark}}{1 \text{ mark}}\]

**Note to marker:** Units are not required.
**Exemplar 1**

\[
\begin{align*}
4000 \text{ ml} & - 300 \text{ ml} \\
\pm 3700 \text{ ml}
\end{align*}
\]

Mark: 0 out of 2  
Rationale: Incorrect answer (uncertainty)

**Exemplar 2**

\[
P = 100 \quad \quad U = 50
\]

\[
4000 - 300 = 3700 \quad 3700 \pm 50 \text{ ml}
\]

Mark: 1 out of 2  
Rationale: Correct answer (measurement) (1 mark)

**Exemplar 3**

\[
\begin{align*}
4000 \text{ ml} & - 300 \text{ ml} \\
\pm 3700 \text{ ml} \pm 1 \text{ ml}
\end{align*}
\]

Mark: 1 out of 2  
Rationale: Correct answer (measurement) (1 mark)
Ralph is painting his living room with a custom colour that was created at the paint store by mixing colours. He did not buy enough paint and needs to buy more.

Explain why a degree of accuracy is needed when mixing additional paint to match his original colour.

*Answer:*

*If the colours are not mixed with the correct amounts it will not match the custom colour.*
Exemplar 1

because it should match the paint of his wall already if it doesn’t then his wall will be shaded with lighter/darker spots of the color

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

Exemplar 2

Because in order to have the same paint, you must have the same amount of measurements to make the same paint.

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

Exemplar 3

a degree of accuracy is needed because if it is off by a little bit the whole color would be off and Ralph would have to find a new basic color and paint the room all over again for it to match.

Mark: 1 out of 1
Rationale: Correct response (1 mark)
DBG Manufacturing has 50 employees. The following table shows employee salaries:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number of Employees</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>1</td>
<td>$700 000</td>
</tr>
<tr>
<td>Managers</td>
<td>3</td>
<td>$100 000</td>
</tr>
<tr>
<td>Sales Staff</td>
<td>30</td>
<td>$50 000</td>
</tr>
<tr>
<td>Administration</td>
<td>4</td>
<td>$40 000</td>
</tr>
<tr>
<td>Maintenance</td>
<td>5</td>
<td>$37 000</td>
</tr>
<tr>
<td>Secretaries</td>
<td>7</td>
<td>$35 000</td>
</tr>
</tbody>
</table>

A) State the mode of the salaries. (1 mark)

*Answer:*

$50 000

B) State which measure of central tendency is most affected by removing the president’s salary. Justify your answer. (2 marks)

*Answer:*

*Mean*  ← 1 mark

*The president’s large salary increases the total earnings for employees and increases the “average” salary. Mode and median are not affected by the president’s salary amount.*  ← 1 mark
**Exemplar 1**

(3 Marks)

A) There will be no mode in this question because no number appears more than once.

B) When removing the president’s salary, we are removing the outlier.

Mark: 0 out of 3

Rationale: - Incorrect answer in Part A
- Incorrect answer in Part B
- Incorrect justification in Part B

**Exemplar 2**

(3 Marks)

A) $50,000$

B) mean because then you get the average of everyone’s salaries

Mark: 2 out of 3

Rationale: - Correct answer in Part A (1 mark)
- Correct answer in Part B (1 mark)
- Incorrect justification in Part B

**Exemplar 3**

(3 Marks)

A) 

\[
\text{Mean} = \left( \frac{7 \times 35000 + 5 \times 37000 + 4 \times 40000 + 30 \times 50000 + 3 \times 100000 + 700000}{50} \right)
\]

\[
\text{Mean} = \frac{245000 + 185000 + 160000 + 1500000 + 300000 + 700000}{50}
\]

\[
\text{Mean} = $618000
\]

Mode = $50000$

B) Mean would be most affected because the president’s salary is so much more than anybody else’s which would significantly drop the mean whereas it wouldn’t affect the mode or median at all.

Mark: 3 out of 3

Rationale: - Correct answer in Part A (1 mark)
- Correct answer in Part B (1 mark)
- Correct justification in Part B (1 mark)
Connor scored 18/20 on a math test. His mark put him in the 15th percentile. Justify what his percentile rank indicates about the math test.

*Answer:*

*The test was done very well because 85% of the class scored above 18/20.*
Exemplar 1

15th percentile is really low percentage it was a hard test and most people scored above 18/20.

Mark: 0 out of 1
Rationale: Incorrect justification (inconsistent information)

Exemplar 2

that it's easy

Mark: 0 out of 1
Rationale: No justification

Exemplar 3

Means the test was easy because he’s 15th compared to others

Mark: 0 out of 1
Rationale: Incorrect justification
Ryan has just finished writing a statistics test. There are 40 students in his class and 30 students scored less than Ryan. Calculate Ryan’s percentile rank.

**Answer:**

\[ PR = \frac{b}{n} \times 100 \]

\[ PR = \frac{30}{40} \times 100 \quad \leftarrow 1 \text{ mark for all correct substitutions} \]

\[ PR = 75 \text{ or } 75^{th} \text{ or } PR_{75} \quad \leftarrow 1 \text{ mark} \]
Exemplar 1

\[
PR = \frac{(30+0.5\times1)}{40} \times 100
\]

\[
PR = 31.25
\]

\[
PR = 3.2^{th}
\]

Mark: 1 out of 2
Rationale: - Correct substitutions (alternate formula) (1 mark)
- Incorrect answer

Exemplar 2

75\(^{th}\) percentile

Mark: 1 out of 2
Rationale: - Correct answer (1 mark)

Exemplar 3

\[
PR = \frac{30}{40} \times 100
\]

\[
= 75\%
\]

Mark: 1 out of 2
Rationale: - Correct substitution (1 mark)
- Incorrect answer (incorrect unit)

Exemplar 4

\[
\frac{30}{40} = 0.75 = 75^{th} \text{ percentile}
\]

Mark: 2 out of 2
Rationale: - Correct substitution (1 mark)
- Correct answer (1 mark)
Juanita took a Physics course. The following table shows the marks she earned for a project and the weight for each category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Mark (%)</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theories</td>
<td>90</td>
<td>40</td>
</tr>
<tr>
<td>Communication</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>Calculations</td>
<td>70</td>
<td>50</td>
</tr>
</tbody>
</table>

A) Calculate Juanita’s final mark for the project using a weighted mean. (2 marks)

*Answer:*

*Final mark:*

\[
\begin{align*}
90 \times 0.40 &= 36 \\
60 \times 0.10 &= 6 \\
70 \times 0.50 &= 35 \\
\frac{77}{100} &= 77\% \\
\end{align*}
\]

\[
\begin{align*}
\rightarrow & \text{ 1 mark for process} \\
\rightarrow & \text{ 1 mark} \\
\end{align*}
\]

*Note to marker: Units are not required.*

B) If Juanita wanted to improve her overall grade, state in which category she should focus her efforts. Justify your answer. (1 mark)

*Answer:*

*Calculations, because they are weighted most heavily.*
Exemplar 1

A)

B) Calculations

Mark: 0 out of 3
Rationale: - No justification in Part B

Exemplar 2

A) \(90 + 60 + \frac{70}{3} = 73.33\%\)

B) She should focus her efforts on calculations. Improving her communication would be a good idea too, but they are only worth 10% of her mark.

Mark: 1 out of 3
Rationale: - Incorrect process in Part A
- Incorrect answer in Part A
- Correct justification in Part B (1 mark)

Exemplar 3

A) \(36 + 6 + 35 = 77\%\)

\[ \therefore \text{her final mark is 77\%} \]

B) Calculations because even though it is not the lowest mark it is still lower than some and it counts for more than the others.

Mark: 3 out of 3
Rationale: - Correct process in Part A (1 mark)
- Correct answer in Part A (1 mark)
- Correct justification in Part B (1 mark)
Appendix:

Irregularities in Provincial Tests

A Guide for Local Marking

During the marking of provincial tests, irregularities are occasionally encountered in test booklets. The following list provides examples of irregularities for which an Irregular Test Booklet Report should be completed and sent to the department:

- completely different penmanship in the same test booklet
- incoherent work with correct answers
- notes from a teacher indicating how he or she has assisted a student during test administration
- student offering that he or she received assistance on a question from a teacher
- student submitting work on unauthorized paper
- evidence of cheating or plagiarism
- disturbing or offensive content
- no responses provided by the student (all “NR”) or only incorrect responses (“0”)

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 at the school level. In this case, please ensure the department is made aware that follow-up has taken place by completing an Irregular Test Booklet Report.

Except in the case of cheating or plagiarism where the result is a provincial 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 Booklet 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 department along with the test materials.
Irregular Test Booklet Report

Test: __________________________________________________________

Date marked: __________________________________________________

Booklet No.: _________________________________________________

Problem(s) noted: ____________________________________________

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Question(s) affected: __________________________________________

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Action taken or rationale for assigning marks: ______________________

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Follow-up: ________________________________________________________________

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Decision: ________________________________________________________________

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Marker’s Signature: __________________________________________________________

Principal’s Signature: ________________________________________________________

For Department Use Only—After Marking Complete
Consultant: ________________________________________________________________
Date: ________________________________________________________________________