



Please paste the barcoded label here

**TOTAL MARKS**

--

NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2024

**MATHEMATICAL LITERACY: PAPER I**

**EXAMINATION NUMBER**

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Time: 3 hours

150 marks

**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY**

1. This question paper consists of:
  - 24 pages that include 1 page at the back for extra calculations or rough work.
  - Five questions
2. Please check that your question paper is complete.
3. Answer ALL FIVE questions.
4. **Answer ALL the questions on the question paper and hand this in at the end of the examination. Remember to write your examination number in the space provided.**
5. A non-graphical, non-programmable calculator may be used.
6. ALL necessary calculations must be clearly shown.
7. Units of measurement must be included where applicable.
8. It is in your own interest to write legibly and to present your work neatly.
9. Maps and diagrams are not necessarily drawn to scale.
10. One blank page (pages 24) is included at the end of the question paper. If you run out of space for a question, use this page. Clearly indicate the question number of your answer should you use this extra space.

Question	1		2		3		4		5		Total	
	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.
<b>Mark</b>												
<b>Signature</b>												
<b>Total</b>	<b>30</b>		<b>35</b>		<b>29</b>		<b>28</b>		<b>28</b>		<b>150</b>	

**THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK**

**QUESTION 1**

The Khumalo family consists of two adults (Mr and Mrs Khumalo) and their two school-going children (one child in Grade R and the other in Grade 2).



Complete all the calculations in the spaces provided below each sub-question.

- 1.1 Mr Khumalo works 20 days per month earning a daily rate of R1 650. He earns an additional income by renting out his second property at a fixed monthly rate of R12 500. Mrs Khumalo earns a net monthly income of R20 000.

Calculate the Khumalo family's net collective income.

---



---

(3)

- 1.2 The Khumalo's bond repayment is R12 300. Determine what percentage of Mr Khumalo's monthly salary is used to repay their bond.

---



---

(3)

- 1.3 The Grade 1 to 7 monthly school fee is R2 300 per child. The Grade R monthly school fee is  $\frac{4}{5}$  of the Grade 1 to 7 school fee. Calculate the total monthly school fee for both children.

---



---



---

(3)

- 1.4 Both children travel to and from school by scholar transport. Mr Khumalo pays R15,00 per one-way (single) trip per child. There are 20 school days in a month. Calculate the amount Mr Khumalo pays for transport for both children.

---



---



---



---

(3)

- 1.5 The Khumalo's budget 5% of Mrs Khumalo's net monthly income of R20 000 for municipal expenses. Calculate this amount.

---



---

(2)

- 1.6 Two years ago, the Khumalo family used to spend an average amount of R6 500 per month on groceries. If the average rate of inflation is 5,46%, determine the percentage increase amount and the current amount per month budgeted for groceries in the table.

<b>Cost two years ago:</b>	<b>Percentage increase amount:</b>	<b>Inflated amount a year ago:</b>
R6 500	R354,90	R6 854,90
<b>Cost last year:</b>	<b>Percentage increase amount:</b>	<b>Current amount:</b>
R6 854,90		

(4)

- 1.7 The Khumalo family budgets the money they spend for entertainment and the money they save for emergencies in a ratio of 2 : 5. If the Khumalo family saves R3 000 for emergencies per month, how much do they spend on entertainment?

---



---




---

(3)

1.8 Mr Khumalo found the following information online regarding fuel prices in South Africa. Study the table below and answer the questions that follow:

DATE	FUEL PRICE PER LITRE (R)	DOLLAR TO RAND EXCHANGE RATE (\$1 = R_ )
2024-07-03	22,86	18,4146
2024-06-05	23,91	18,9046
2024-05-01	25,15	18,6120
2024-04-03	24,78	18,6707
2024-03-06	24,13	18,8263
2024-02-07	22,92	18,9030
2024-01-03	22,17	18,7254



[Source: Fuel Pricing – AA]

1.8.1 Calculate the difference between January and May 2024's fuel price per litre.

---



---



---

(3)

1.8.2 Which measure of central tendency does the answer to Question 1.8.1 represent?

---



---



---

(2)

1.8.3 Is the data for the fuel price per litre continuous or discrete?

---



---



---

(2)

1.8.4 During which month was the exchange rate the second highest?

---



---



---

(2)  
**[30]**

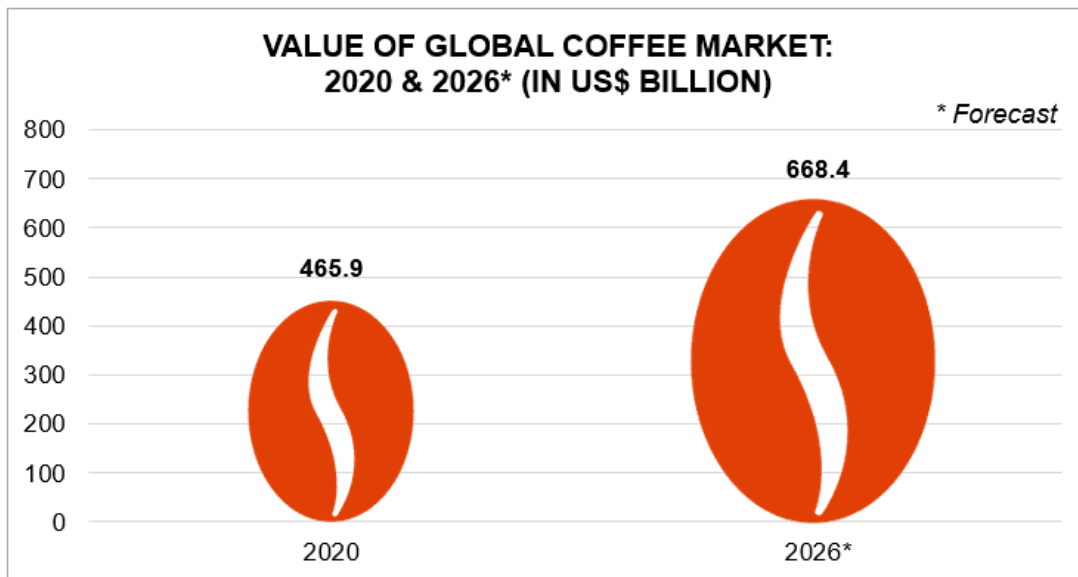
**QUESTION 2**

Joseph is obsessed with coffee and wants to open a coffee kiosk at a food market. He needs to do the relevant research for a risk assessment. He finds some interesting facts online.



2.1 Joseph finds a graph illustrating the predicted increase in the value of the global coffee market online.

Study the graph below and answer the questions that follow.



[Source: Is at-home consumption heating up South Africa's coffee industry? – Insight Survey (bizcommunity.co)]

2.1.1 What type of graph is this?

(2)

2.1.2 State the value of the global coffee market in 2020.

---



---



---

(2)

2.1.3 Determine the predicted increase amount value of the global coffee market from 2020 to 2026.

---



---



---

(2)

2.1.4 Calculate the predicted percentage increase in the price of the global coffee market between 2020 and 2026.

You may use the following formula:

$$\text{Predicted percentage increase} = \frac{\text{difference in predicted price}}{\text{original price}} \times 100\%$$

---



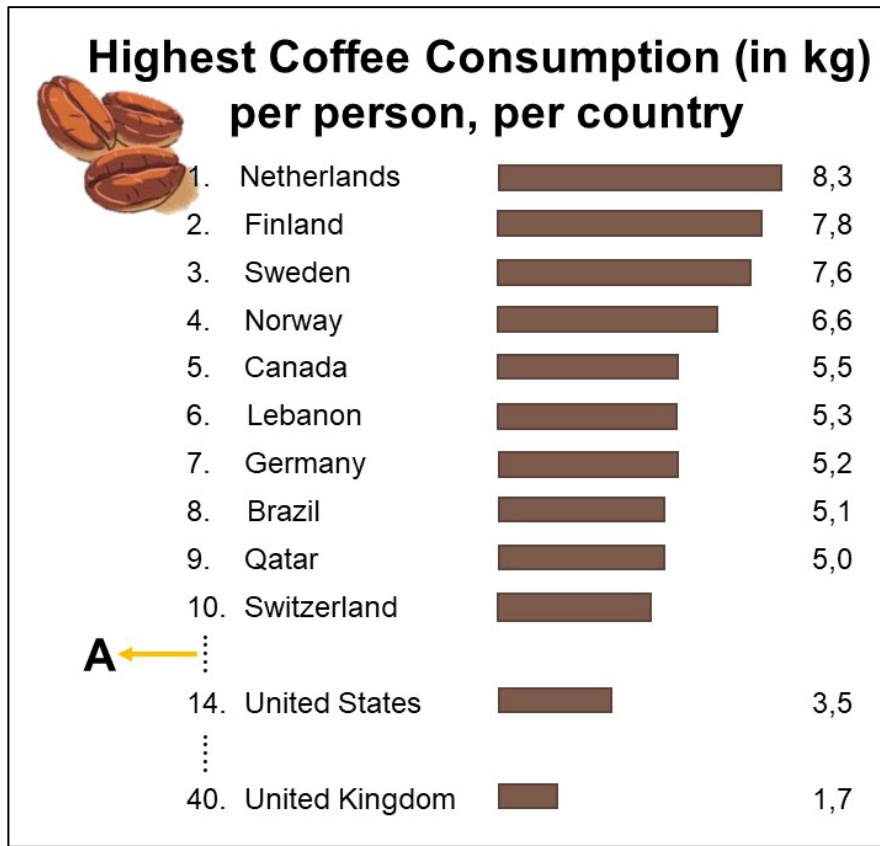
---



---

(3)

2.2 Joseph also found a graph that illustrates the highest coffee consumption (in kg) per person, per country.



[Source: Chart: The Countries Most Addicted to Coffee | Statista]

2.2.1 Explain the use of the dots in the bar graph illustrated by the letter **A**.

---



---



---



---

(2)

2.2.2 The top 10 highest coffee consumers have an average consumption of 6,12 kg. Show that the average amount of coffee consumed in Switzerland is 4,8 kg per person.

---



---



---



---

(3)

2.2.3 Give the median amount of coffee consumed by the top 10 highest coffee consumers.

---



---



---

(2)

2.3 Joseph learns that the costs of running his coffee kiosk at the food market (per day) are as follows:

- Fixed costs of R500 rental per day.
- Variable costs of R5,50 per cup of coffee.

2.3.1 Give an equation Joseph can use to calculate the cost (R) per day to run his coffee kiosk in terms of the number of cups ( $n$ ) of coffee sold per day.

---



---



---

(3)

2.3.2 The table below displays the solutions to Joseph's calculations determining the cost per day to run his coffee kiosk in comparison to the income. Some values in the table have been omitted.

Number of cups of coffee ( $n$ )	0	1	10	20	<b>C</b>	100
Cost per day (R)	<b>A</b>	505,50	555,00	610,00	665,00	<b>D</b>
Income per day (R)	0	<b>B</b>	200,00	400,00	600	2 000,00

Calculate the values of **A**, **B**, **C** and **D**.

---



---



---



---



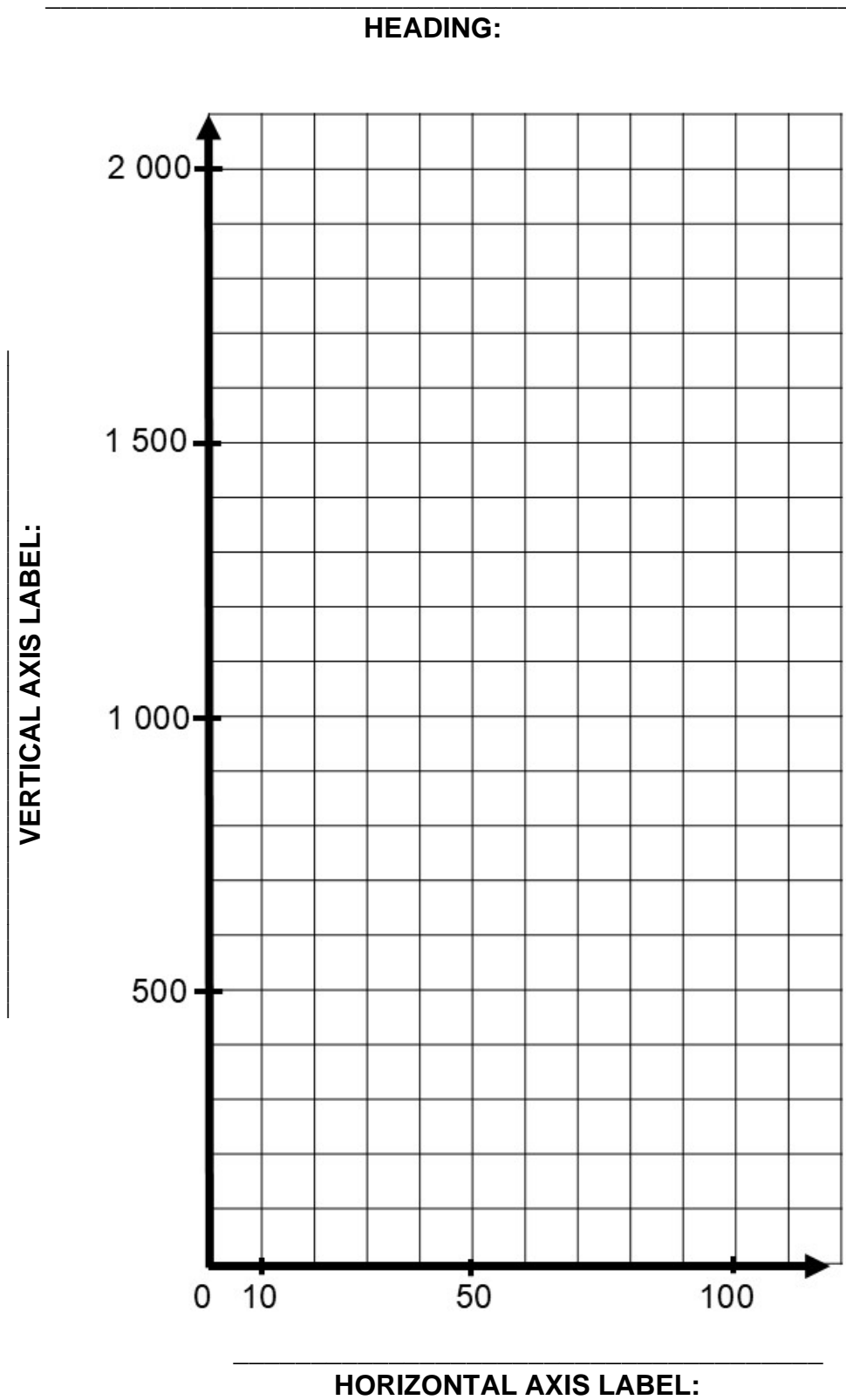
---



---

(8)

2.3.3 Use the values in the table from Question 2.3.2 to plot the cost and income on the graph below. Provide a suitable heading and label the axes.



**VERTICAL AXIS LABEL:**

(8)  
[35]

**THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK**



3.2 The average salary in the USA is \$1 100 per week. Compare the average annual salaries of South Africa and the USA to determine which country has the highest average salary, if \$1 = R18,83.

---

---

---

---

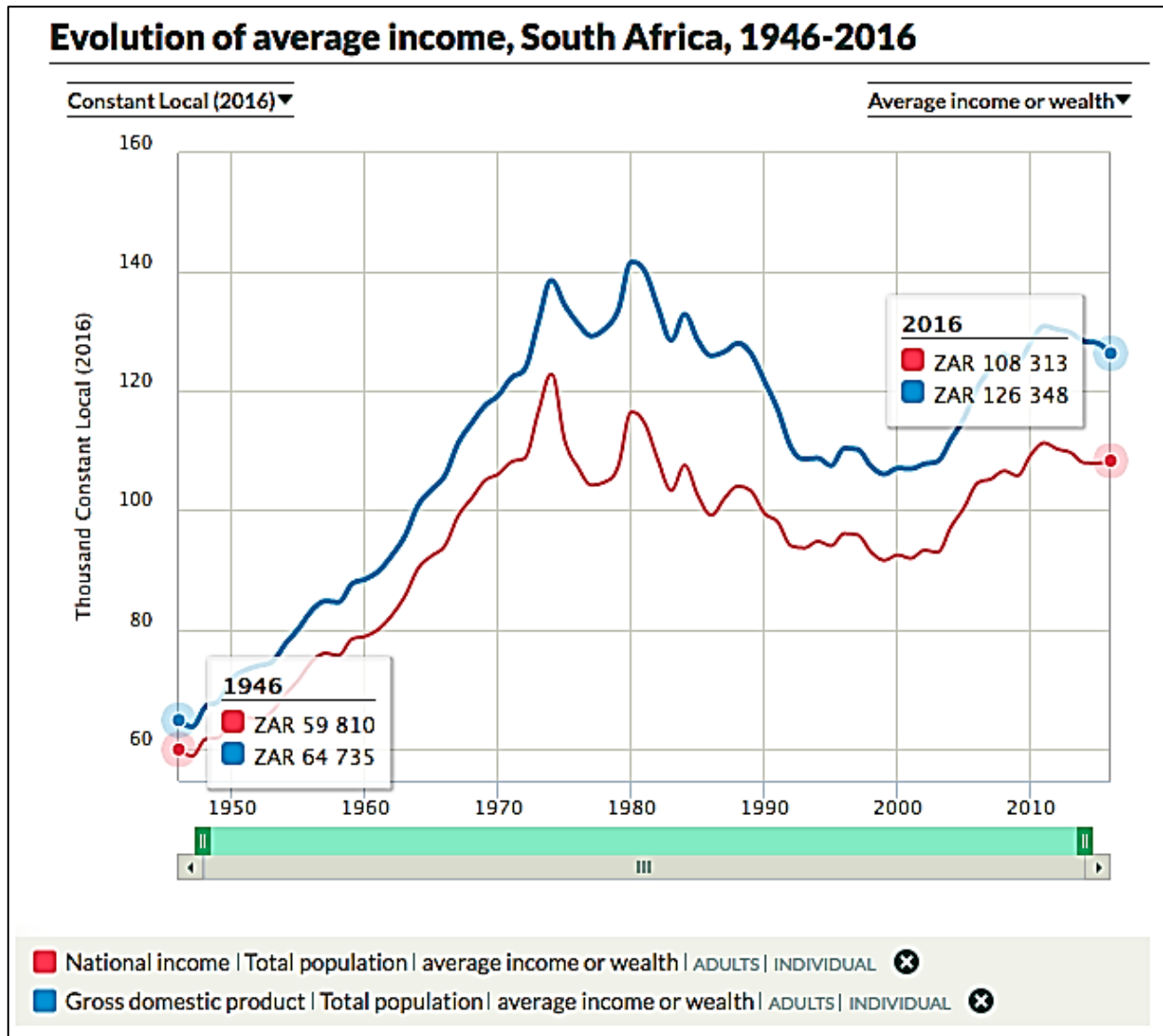
---

---

---

(5)

3.3 The graph below shows the change in the average annual income in South Africa from 1946 to 2016. Study the graph and answer the questions that follow:



3.3.1 What was the average national monthly income (red line) in 2016?

---



---



---

(2)

3.3.2 In which year was the gross domestic product the highest?

---

(2)

3.3.3 What was the average annual income in 1990?

---

(2)

3.3.4 Describe the trend in the national income from 1946 to 1980.

---

---

---

(3)

3.4 In 2023, the minimum wage in South Africa was R25,42 per hour. However, from the 1st of March 2024, the Department of Labour increased the minimum wage by 8,497%.

Hence, determine how much the minimum wage for a month will be if a worker works 40 hours in a week after the increase in 2024.

---

---

---

---

(5)

3.5 The table below shows the average annual net salary in South Africa by city. The amounts are arranged in descending order. Study the table and answer the question that follows:

**AVERAGE SALARY IN SOUTH AFRICA BY CITY**

CITY	AVERAGE ANNUAL NET SALARY
East London	R296 429
Johannesburg	R295 000
Cape Town	<b>A</b>
Pretoria	R252 000
Durban	R226 000
Port Elizabeth	R212 000
Pietermaritzburg	R203 000
Vereeniging	R194 000
Kimberley	<b>B</b>
Bloemfontein	<b>C</b>



Use the given data in the table and the information below to determine the missing values of **A**, **B** and **C**.

- The range is R109 429.
- The upper quartile is R269 000.
- The mode is R203 000.

---



---



---

(3)  
[29]

**QUESTION 4**

A Boeing 747 flies from Johannesburg to Cape Town. It carries **400 passengers**, each passenger having an average mass of 80 kilograms. The cost per flight will depend on factors like fuel prices, maintenance costs, crew salaries, landing fees, etc. As of recent estimates, it could cost anywhere from R1 148 642,40 to R1 914 404,00 (**\$101 463,41**) per flight.



4.1 If R1 914 404,00 = \$101 463,41, determine the rand to dollar exchange rate at the time this blurb was written in the form \$1 = \_\_\_\_\_ to four decimal places.

---



---



---

(3)

4.2 Determine, in Rands, the cost per passenger, given the minimum flight costs and the number of passengers.

---



---



---

(3)

4.3 Find the average cost, in Rand, per kilogram of passenger mass, considering the total mass of passengers with the minimum flight costs.

---



---

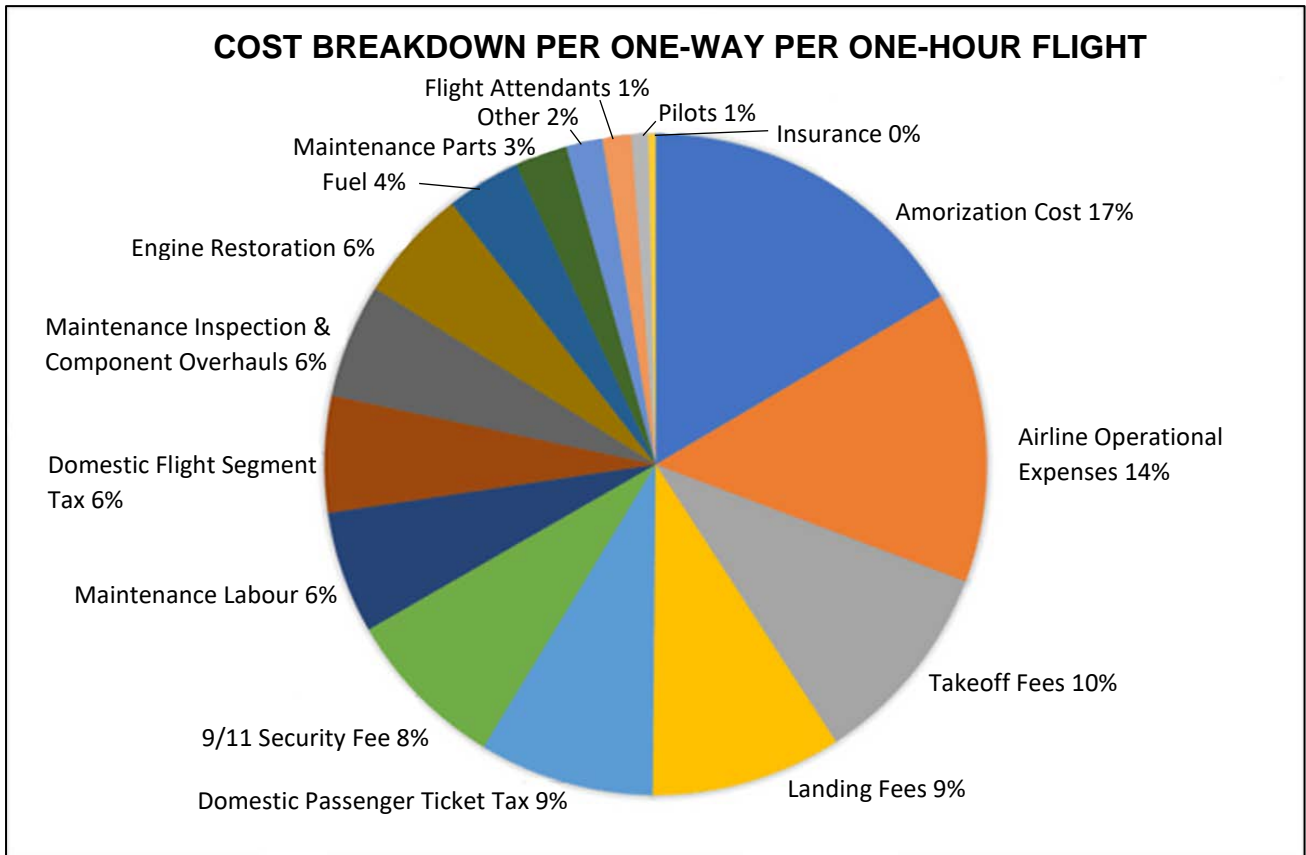


---

(4)

4.4 The graph below illustrates the cost breakdown per one-way for a one-hour flight.

Study the graph below and answer the questions that follow.



[Source: <<https://www.reddit.com/r/WendoverProductions>>]

4.4.1 The cost of a two-hour flight from Johannesburg to Cape Town is R1 148 642,40. Show that an air hostess will earn R717,90/hour on this flight if the ratio of air hostesses to passengers is 1 : 50.

---



---



---



---



---

(5)

4.4.2 Calculate the size (in degrees) of the sector allocated to Landing Fees.

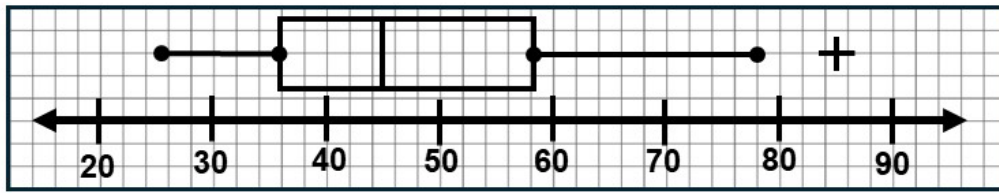
---



---

(3)

4.5 The box-and-whisker plot below shows a summary of the mass of luggage, in kg, for a passenger on a flight between Johannesburg and Cape Town.



The airline's recommended mass limit for each passenger's luggage is 45 kg.

4.5.1 State the percentage of passengers whose luggage was below the recommended mass limit.

\_\_\_\_\_ (2)

4.5.2 A quarter of the passengers had to pay a charge because their luggage was excessively overweight. What is the lowest luggage mass within this group?

\_\_\_\_\_ (2)

4.5.3 Determine the interquartile range of the data spread.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ (2)

4.5.4 The + sign on the box-and-whisker plot indicates an outlier. Explain what you understand with the term 'outlier'.

\_\_\_\_\_ (2)

4.5.5 The data is skewed to the (right / left). Highlight or underline the correct answer within the bracket.

(2)  
**[28]**

**QUESTION 5**

In 2024, the revenue in the athletic footwear segment of South Africa is expected to reach \$150,80 million.

5.1 Write out in full: \$150,80 million in numbers without the comma and the word 'million'.

---

(2)

5.2 It is anticipated that the market will have an annual growth rate of 4,35% (2024 – 2028). Eight hundred and one thousand, two hundred and twenty-three pairs of shoes will be sold by the end of 2024. It is predicted to reach 0,95 million pairs by the end of 2028. By completing the table, show that this statement is true.

YEAR	STARTING NO. OF PAIRS OF SHOES SOLD	PERCENTAGE INCREASE	ENDING NO. OF PAIRS OF SHOES SOLD
2024			A
2025	A	34 853,20	836 076,20
2026	836 076,20	B	C
2027	C	37 951,38	910 396,89
2028	910 396,89	D	949 999,15

---



---



---



---



---

(5)

5.3 South African consumers demonstrate a growing preference for locally produced athletic footwear brands. VAYA is such a brand.



5.3.1 The VAYA Victory Lap 1 athletic footwear costs R1 299,99 (inclusive of VAT). With calculations, determine the VAT amount payable to SARS.

---



---



---



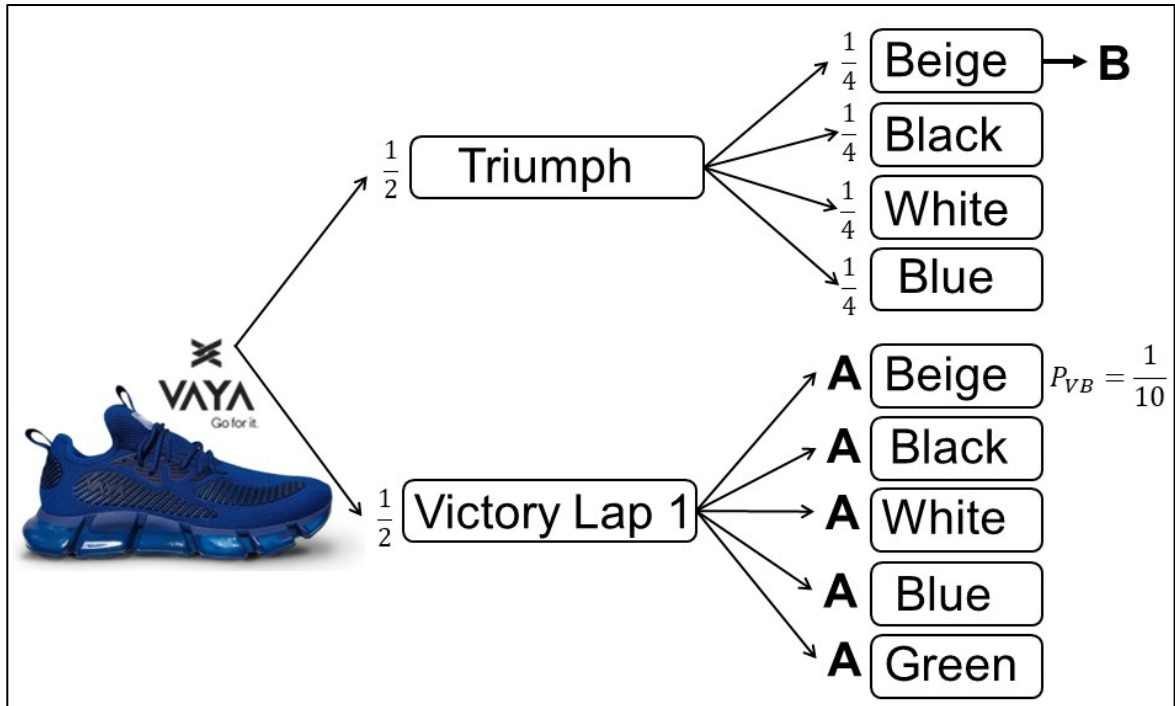
---

(3)

5.3.2 What does the acronym SARS stand for?

\_\_\_\_\_ (2)

5.3.3 VAYA sells two types of athletic footwear, Victory Lap 1 and Triumph, in a variety of colours online. The tree diagram below illustrates the various options.



(a) Write down the probability that a customer would select a Beige Victory Lap 1 shoe, labelled **A** on the tree diagram.

\_\_\_\_\_ (2)

(b) Calculate the probability that a customer will, at random, select a Beige Triumph shoe, labelled **B**.

\_\_\_\_\_ (2)

(c) Write the probability of selecting a Beige Victory Lap 1 shoe as a decimal and percentage.

Decimal: \_\_\_\_\_

Percentage: \_\_\_\_\_

(2)

5.3.4 The VAYA online store sells 50 pairs of athletic footwear in a week. The prices of the footwear are as follows: R950; R1 100; R1 200; R1 299,99; and R1 400. Show that the mean (average) income earned in a month is R237 999,60.

---

---

---

---

---

(4)

5.3.5 What is the range of prices of the footwear?

---

---

(2)

5.3.6 Why is it more important to know the modal shoe size sold than the average shoe size sold?

---

---

---

(2)

5.4 The image below is a screenshot from a magazine. The article discusses the readers' preference in the height of their high heel shoes after a poll (survey) was taken.



[Source: Pinterest]

Give a reason why the graph in the image can be considered misleading to readers.

---

---

---

(2)  
[28]

**Total: 150 marks**

