

PRACTICE EXAMINATION PAPER

MATHEMATICAL LITERACY

PAPER 1 | GRADE 12 | 2024

Time: 3 hours

Total: 150 marks

Language: English

This paper is for PRACTICE purposes only. Not an official Department of Basic Education paper.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR sections.

2. Answer A

QUESTION 1: Personal Finance and Tax

[45 marks]

1.1 Themba earns a monthly salary of R28 500. He pays a medical aid contribution of R1 850 per month and belongs to a pension fund where he contributes 7,5% of his gross salary.

(a) Calculate Themba's annual gross income.

(3)

Answer:

1.2 (b) Calculate the pension deduction per month.

(2)

Answer:

1.3 (c) Using the 2024 tax table below, calculate Themba's annual income tax:

[0 - 237 100: 18%] [237 101 - 370 500: R42 678 + 26% above R237 100]

[370 501 - 512 800: R77 362 + 31% above R370 500]

Primary rebate: R17 235 | Medical aid credits: R364/month per beneficiary (Themba + 1 dependent)

Tax threshold: R95 750

(8)

Answer:

1.4 (d) Calculate Themba's net monthly take-home pay. **(4)**

Answer:

1.5 Themba wants to buy a car for R285 000. He takes a loan at 12,5% per annum, compounded monthly, over 60 months.

(a) Calculate the monthly repayment using the formula: $PMT = P \cdot i / (1 - (1+i)^{-n})$ **(5)**

Answer:

1.6 (b) Calculate the total amount paid over 5 years. **(2)**

Answer:

1.7 (c) How much interest does Themba pay in total? **(2)**

Answer:

1.8 Themba also has a savings account. He deposits R3 500 per month into an account earning 7,8% p.a. compounded monthly.

Calculate the value of his savings after 3 years.

[Use: $FV = PMT \cdot ((1+i)^n - 1) / i$] **(6)**

Answer:

1.9 Themba received a bonus of R18 000. He wants to invest it for 5 years.

Option A: 8,5% simple interest

Option B: 7,9% p.a. compound interest

Calculate the value of each option and recommend which is better. **(8)**

Answer:

- 1.10** Themba's electricity bill shows: Fixed charge R98,50 + First 350 kWh at R1,89/kWh + remaining kWh at R2,34/kWh. He used 520 kWh this month.
Calculate his total electricity bill including 15% VAT. (5)

Answer:

TOTAL FOR THIS QUESTION: 45

QUESTION 2: Measurement and Spatial Reasoning

[40 marks]

- 2.1** A circular swimming pool has a diameter of 6,5 m. It is filled to a depth of 1,2 m.
(a) Calculate the volume of water in the pool in kilolitres. (4)

Answer:

- 2.2** (b) Water costs R12,40 per kilolitre. Calculate the cost to fill the pool. (2)

Answer:

- 2.3** (c) Calculate the circumference of the pool. (Use $\pi = 3,142$) (2)

Answer:

- 2.4** A room is 7,2 m long, 5,4 m wide and 2,7 m high. The room has:
- ONE door: 0,9 m x 2,1 m
- TWO windows: each 1,2 m x 0,8 m
(a) Calculate the total wall area (excluding floor, ceiling and openings). (6)

Answer:

- 2.5** (b) Tiles are sold in boxes of 10, each tile measuring 30 cm x 30 cm. How many boxes

are needed for the floor? (4)

Answer:

2.6 (c) Paint covers 8 m^2 per litre. How many litres are needed for TWO coats on the walls? (3)

Answer:

2.7 A school needs to fence a rectangular sports field that is 120 m long and 80 m wide. Fencing costs R185 per metre.
(a) Calculate the total cost of fencing. (3)

Answer:

2.8 (b) The field needs to be resurfaced at a cost of R78 per m^2 . Calculate the total cost. (2)

Answer:

2.9 A juice box is 8 cm x 6 cm x 12 cm (l x w x h). Calculate:
(a) Volume in millilitres (2)

Answer:

2.10 (b) Total surface area of the box (4)

Answer:

2.11 Convert: (a) 2,5 km to metres (b) 3 hours 45 minutes to seconds (c) 8,5 litres to millilitres (d) 56 km/h to m/s (4)

Answer:

2.12 A map has a scale of 1:250 000. Two towns are 4,8 cm apart on the map. What is the actual distance in km? (2)

Answer:

2.13 A recipe requires 750 g of flour to make 24 biscuits. How much flour is needed for 36 biscuits? (2)

Answer:

TOTAL FOR THIS QUESTION: 40

QUESTION 3: Data Handling and Probability

[35 marks]

3.1 The following data shows the marks (out of 50) obtained by 20 learners in a Mathematics test:
32, 45, 28, 39, 44, 17, 38, 41, 29, 36, 48, 22, 35, 43, 31, 27, 40, 33, 46, 38
(a) Organize the data into a frequency table using intervals: 10-19, 20-29, 30-39, 40-49. (5)

Frequency table:

3.2 (b) Draw a histogram for the data. (4)

Histogram:

3.3 (c) Calculate the mean mark. (3)

Answer:

3.4 (d) Find the median and mode. (3)

Answer:

3.5 (e) Calculate the range and the interquartile range. (4)

Answer:

3.6 (f) Draw a box-and-whisker plot for this data. (4)

Box-and-whisker:

3.7 A bag contains 5 red, 3 blue and 2 green marbles. If one marble is drawn at random:
(a) What is the probability of drawing a red marble? (2)

Answer:

3.8 (b) What is the probability of NOT drawing a blue marble? (2)

Answer:

3.9 (c) If a marble is drawn, noted, and replaced, what is the probability of drawing red then green? (3)

Answer:

3.10 The scatter plot (described below) shows hours studied (x-axis) vs marks obtained

(y-axis) for 10 learners. A line of best fit passes through (1, 35) and (8, 77).

(a) Calculate the gradient of the line of best fit. (3)

Answer:

3.11 (b) Predict the expected mark for a learner who studies for 5 hours. (2)

Answer:

TOTAL FOR THIS QUESTION: 35

QUESTION 4: Maps, Plans and Scale Drawings

[30 marks]

4.1 Study the floor plan of a house (described):

[Plan shows: Living room 5m x 4m, Bedroom 1: 4m x 3,5m, Bedroom 2: 3m x 3m, Bathroom: 2m x 2,5m, Kitchen: 3m x 3m, Passage: 1m x 6m]

Scale: 1 cm = 1 m

(a) Calculate the total floor area of the house. (4)

Answer:

4.2 (b) Carpeting costs R245/m². Calculate the cost to carpet BOTH bedrooms and the living room. (4)

Answer:

4.3 (c) On the plan, the living room measures 5 cm x 4 cm. Is the scale correct? Show your calculation. (3)

Answer:

4.4 Using the street map provided (described):

[Description: Grid map showing streets A-H running north-south, Streets 1-6 running east-west, Pharmacy at A3, School at F5, Supermarket at C1, Hospital at H6]

Give directions from the pharmacy to the hospital using compass bearings and street names.

(6)

Answer:

4.5 Study the bus timetable:

Route 12 - City Centre to Airport

Depart City Centre: 06:00, 07:30, 09:00, 11:30, 14:00, 16:30, 18:00

Journey time: 45 minutes

(a) At what time will the 07:30 departure arrive at the airport?

(2)

Answer:

4.6 (b) Sipho needs to be at the airport by 15:00. What is the latest departure he can take?

(2)

Answer:

4.7 (c) How many bus departures are there between 09:00 and 18:00 inclusive?

(2)

Answer:

4.8 A recipe serves 6 people. Convert the ingredients to serve 15:

250 ml flour | 3 eggs | 125 ml butter | 500 ml milk | 45 ml sugar

(4)

Answer:

4.9 A trip of 420 km is driven at an average speed of 105 km/h. Calculate the travel time in hours and minutes.

(3)

Answer:

TOTAL FOR THIS QUESTION: 30