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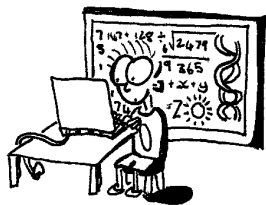
THE PAPERS

□ JUNE EXAM PAPERS

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WHAT IS MATHS LITERACY? //

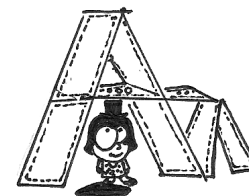
DEFINITION:

“Mathematical Literacy provides learners with an **awareness** and **understanding** of the role that mathematics plays in the modern world. It is a subject that is driven by **life-orientated applications of mathematics**. It enables learners to develop the ability and confidence to **think numerically** and **spatially** in order to **interpret** and **critically analyse** everyday situations and to **solve problems**.”

(DOE, National Curriculum Statement Gr 10 – 12 (General) – Mathematical Literacy, pg 9 & 10)

Maths Literacy is:

- Practical Mathematics
- Mathematics taught with links to real-life contexts and applications.
- Aimed at providing learners with skills and knowledge to be able to deal with the mathematical scenarios that they encounter in their daily lives and in the workplace.
- Aimed at developing learners who are able to apply their mathematical knowledge and skills to solve problems in life.



SKILLS FOR MATHS LITERACY

As a Grade 10-learner you are expected to master a number of the following skills, all of which you will come across in real life contexts.

LO1: Number and operations in context

You will learn how to:

- substitute into a formula
- simplify calculations
- work with positive exponents and roots
- calculate %
- find % increase and decrease
- convert between fractions and %
- use a calculator
- estimate answers
- calculate rate
- use rate to calculate amounts
- solve problems using direct/indirect proportions
- simplify ratios
- share in a given ratio
- increase/decrease in a given ratio
- plan personal finances inclusive of income and expenditure
- calculate simple interest
- calculate compound interest



LO2: Functional relationships

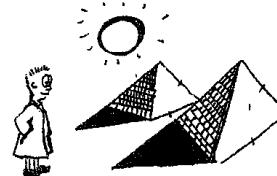
You will learn how to:

- identify the dependent and independent variables
- calculate and describe rate of change
- draw graphs by :
 - point by point plotting of data
 - using a formula to find points to plot
 - using graphing software
- read variables off a graph
- describe trends using → graphs
→ rate of change
- complete tables of values by
 - determining output values for given input values (or vice versa)

LO3: Space, shape and measurement

You will learn how to:

- use appropriate instruments for measuring
- solve problems in 2-D and 3-D context
- estimate, measure and calculate values which involve :
 - length and distances
 - perimeters of squares, rectangles, triangles and circles
 - volumes of right prisms
 - angle sizes (0° - 360°)
- convert units within the metric system
- draw and interpret scale drawings
- use maps and grids to determine locations
- use geometric diagrams to solve real-life problems in 2-D and 3-D situations.
- recognise, visualise, describe and compare properties of geometric plane figures.



LO4: Data handling

You will learn how to:

- organise data using → tallies
→ frequency tables
- present data by → pie charts
→ bar graphs
→ line graphs
→ histograms
- perform calculations → mean
→ median
→ mode
→ range
- draw conclusions
- express probability in terms of fractions and %.

THE EXAM

DETAILS OF THE NOVEMBER EXAM

- ❑ The end-of-year examination for Grade 10 will consist of **ONE 3 hour paper of 150 marks.**
- ❑ The final examination should give equal weighting to the four LEARNING OUTCOMES and should attempt to examine all the Assessment Standards determined for Grade 10.

PROGRAMME OF ASSESSMENT

November Exam	75%
Continuous Assessment	25%
TOTAL	100%





JUNE PAPER 4

QUESTION 1

1.1 Brad is introduced to Angelina by mutual friends and he decides to invite her out for breakfast. Each has a cappuccino to begin with, then Angelina orders a croissant with scrambled eggs and salmon and Brad has the full English breakfast. After their meal, Brad has another cappuccino, while Angelina decides to have some herbal tea. Brad, being old-fashioned, pays the bill. What does he pay if he adds on a tip of 10% and then rounds the amount up to the nearest R10?

Extracts from the menu are given below.

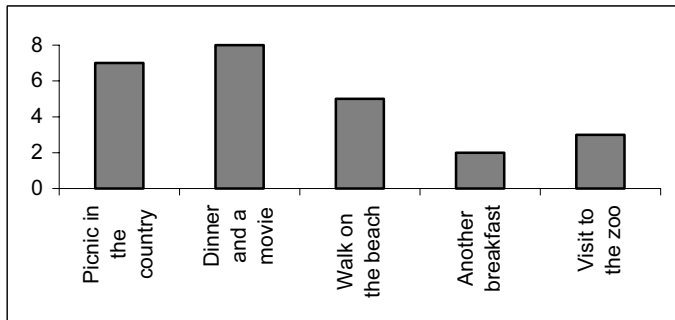
(4)

Breakfasts	
Croissant with cheese	15
Croissant with preserves	12
Croissant with scrambled eggs	20
(add R9 for salmon extra)	
Mini English Breakfast	25
Full English Breakfast	34
Bumper Farmer's Breakfast	42



Hot Drinks	
Coffee (bottomless)	9
Cappuccino	10
Caffè latte	12
Tea (Ceylon)	9
Tea (Rooibos)	9
Tea (herbal)	11

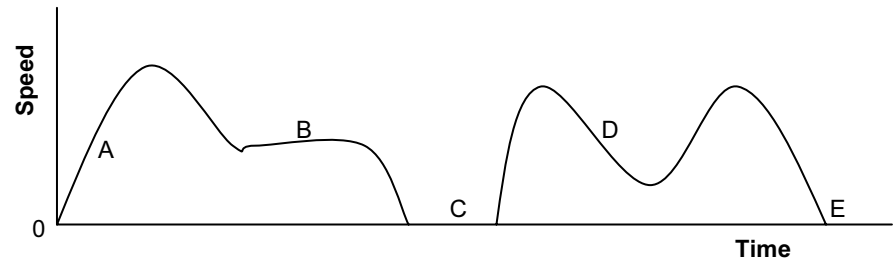
1.2 Angelina decides that, as a woman of the new millennium, she should invite Brad out on the next date. She is not sure what to suggest, so she asks 25 of her best friends for their opinions on the ideal date. Her findings are summarised in the following bar graph.



- 1.2.1 What is the most popular suggestion? (1)
- 1.2.2 How many of Angelina's friends suggest a walk on the beach? (1)
- 1.2.3 What percentage of the friends surveyed think dinner and a movie would be the ideal date? (3)
- 1.2.4 Which option is suggested by $\frac{1}{5}$ of Angelina's friends? (2) [11]

QUESTION 2

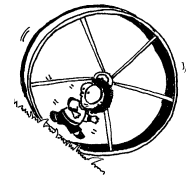
2.1 Brad is really fond of Angelina and he decides to impress her by taking her for a drive in his new car. The journey is represented by the following graph. Describe what is happening at points A, B, C, D and E.



(5)

2.2 Angelina knows a little more about cars than Brad realises and she decides to examine how quickly his new car accelerates. She examines the speed of his car at two second intervals and summarises her findings in the table below.

Time (seconds)	Speed (km/h)
0	0
2	40
4	80
6	120
8	160
10	160



- 2.2.1 At what rate does the speed increase during the first eight seconds, i.e. by how many km/h does the speed increase per second? (2)
- 2.2.2 Explain the motion of the car from the eighth second to the tenth second. (2)
- 2.2.3 Write an equation that relates the speed (s) and the time (t) in the first eight seconds. (2)
- 2.2.4 Use the information in the table to draw a graph which shows the acceleration of Brad's car. (4)

2.3 Angelina is a bright girl and she investigates the acceleration of her own car from a standing position. She finds that the distance (d) in metres covered by her car can be calculated from the time (t) in seconds by using the equation $d = 1,7 t^2$.



- 2.3.1 What distance will Angelina's car have covered after five seconds? (2)
- 2.3.2 If her car covers 170 m in ten seconds, what is the average speed of her car between the fifth and the tenth second? (3) [20]

QUESTION 4

4.1 40,9 km

4.2 $\frac{40,9}{5} = 8,18$ km per day

4.3.1 $\frac{10}{4,5} = 2,22$ km/h

4.3.2 $\frac{3,8}{2,22} = 1,71$ hours

$0,71 \times 60 = 43$ minutes

∴ It will take 1 hour and 43 minutes



QUESTION 5

5.1.1 $x^2 = (5)^2 + (12)^2$
 $= 25 + 144$
 $= 169$

∴ $x = 13$

5.1.2 $y^2 = (15)^2 - (12)^2$
 $= 225 - 144$
 $= 81$

∴ $y = 9$

5.2.1 $PS = \frac{8,4}{2} = 4,2$ m

$QS^2 = PW^2 - PS^2$
 $= (4,7)^2 - (4,2)^2$
 $= 22,09 - 17,64$
 $= 4,45$

∴ $QS = 2,11$ m

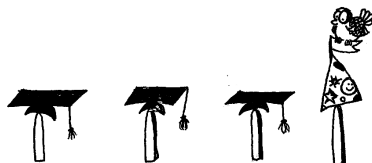
5.2.2 $QT^2 = QS^2 - ST^2$
 $= (2,11)^2 - (1,6)^2$
 $= 1,8921$

∴ $QT = 1,38$ m

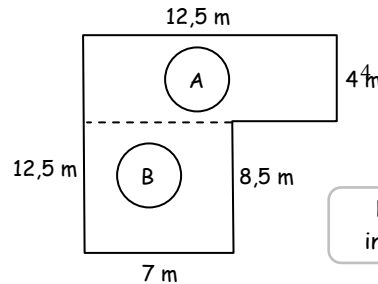
When finding the length of a side in a right angled triangle, we use Pythagoras.



Only round off your FINAL answer to prevent rounding errors



5.3



Divide the area into 2 rectangles.



Area A = length \times breadth
 $= 12,5 \times 4$
 $= 50$ m²

Area B = length \times breadth
 $= 7 \times 8,5$
 $= 59,5$ m²

∴ Total area = $50 + 59,5$
 $= 109,5$ m²

Cost of type A = $109,5 \times 99$
 $= R10\ 840,50$

Type B get 7m² free, therefore only pay for 102,5 m²

∴ Cost of type B = $102,5 \times 105$
 $= R10\ 762,50$

∴ Type B is the better buy

QUESTION 6

6.1.1 $3x - 4 = 2x + 6$
 $\therefore 3x - 2x = 6 + 4$
 $\therefore x = 8$

The sides of a square are equal so make the two expressions equal to each other.

6.1.2 **Perimeter = 2(length + breadth)**
 $= 2(3x - 4 + 2x + 6)$
 $= 2(5x + 2)$
 $= 10x + 4$

But Perimeter = 44 cm

∴ $10x + 4 = 44$

∴ $10x = 40$

∴ $x = 4$ cm

QUESTION 7

7.1.1 **Simple Interest = $P \times \frac{r}{100} \times n$**
 $= (5\ 000) \left(\frac{8}{100} \right) (3)$
 $= 1\ 200$

∴ Total amount after 3 years = $5\ 000 + 1\ 200$
 $= R6\ 200$

7.1.2 **A = $P \left(1 + \frac{r}{100} \right)^n$**
 $= 5\ 000 \left(1 + \frac{7}{100} \right)^3$
 $= R6\ 125,22$

∴ Interest earned = $6\ 125,22 - 5\ 000$
 $= R1\ 125,22$

7.2.1 Amount owing after deposit = $2\ 500 - 500$
 $= R2\ 000$

$I = 2\ 000 \times \frac{12}{100} \times 3$
 $= 720$

∴ He pays R720 interest

7.2.2 Total owing = $2\ 000 + 720$
 $= 2\ 720$

∴ Monthly instalments = $\frac{2\ 720}{36}$
 $= R75,56$

7.2.3 Total cost = $2\ 720 + 500$
 $= R3\ 220$

7.2.4 You end up paying more because you are charged interest.



QUESTION 8

8.1 Mount Kilimanjaro: 19 341 feet

1 foot = 12 inches

Convert to inches: $19\ 341 \times 12$
 $= 232\ 092$ inches

Convert to cm: $232\ 092 \times 2,54$
 $= 589\ 513,68$ cm

1 inch = 2,54 cm

Convert to m: $589\ 513,68 \div 100$
 $= 5\ 895,14$ m

1 m = 100 cm

∴ Mount Everest is the highest.