GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION

2019

10601

MATHEMATICAL LITERACY

PAPER 1

TIME: 3 hours

MARKS: 150

13 pages + 1 answer sheet and an addendum of 4 pages

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(Paper 1)

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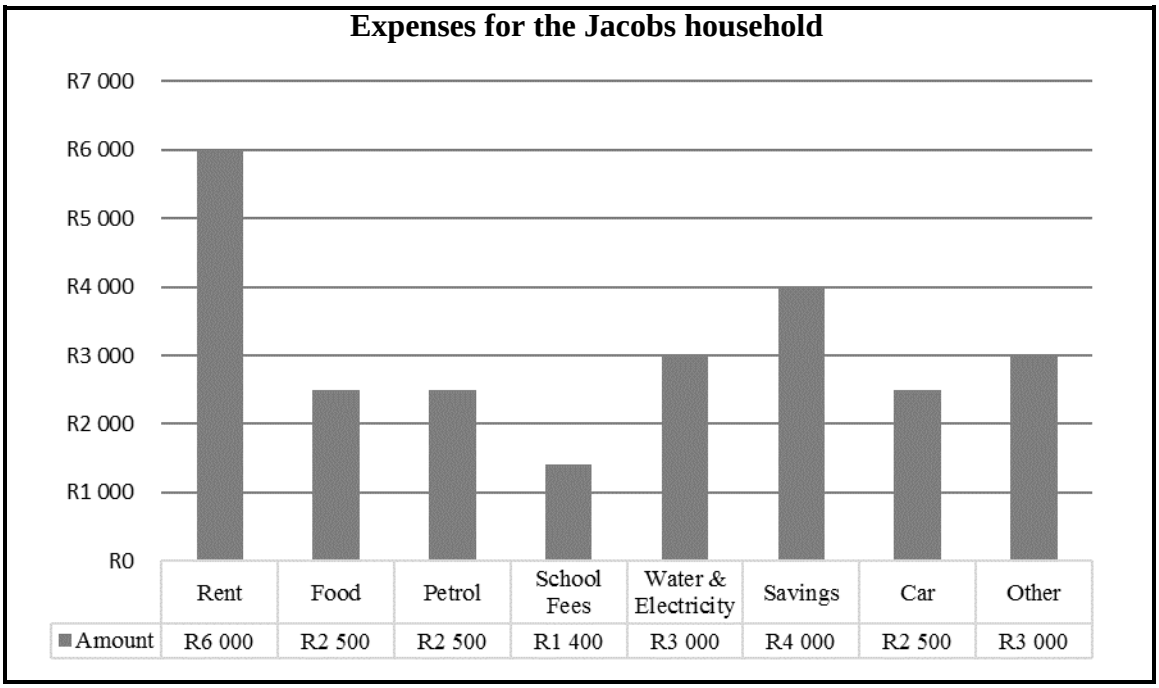
MARKS: 150

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. ANSWER SHEET: Write your name in the spaces provided and hand in your ANSWER SHEET with your ANSWER BOOK.
3. Use the ADDENDUM as follows:
    - Use ANNEXURE A to answer Question 2.1
    - Use ANNEXURE B to answer Question 4.1
    - Use ANNEXURE C to answer Question 4.2
4. Number your answers correctly according to the numbering system used in this question paper.
5. An approved calculator (non-programmable and non-graphical) may be used unless stated otherwise.
6. Show ALL calculations clearly.
7. Round-off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Start EACH question on a NEW page.
10. Write neatly and legibly.

QUESTION 1

1.1 The graph below represents the monthly expenses for the Jacobs family household.



Study the graph above and answer the questions that follow.

1.1.1 Identify the type of graph used above. (2)

1.1.2 Calculate the total amount that the Jacobs household needs to budget for each month. (2)

1.1.3 Arrange the amounts of the budgeted items in descending order. (2)

1.1.4 Measure the length of the "School Fees" bar in mm. (2)

1.1.5 Mrs Jacobs earns a nett monthly income of R11 335 and Mr Jacobs earns a nett monthly income of R14 363.
Determine the total nett monthly income of the Jacobs household. (2)

1.1.6 Define the term *nett income.* (2)

1.2 Mr Jacobs wants to buy a new luggage bag for his holiday to the Kruger National Park. He found the two advertisements below while searching the internet.

OCTOLITE CARRY ON	AMERICAN TOURISTER
 **Scale: 1:50**	 **Scale: 1:75**
Selling price: R2 499 (15% VAT included)	Selling price: R1 999 (15% VAT excluded)

Study the two options above and answer the questions that follow.

1.2.1 Write out the acronym *VAT* in full. (2)

1.2.2 Calculate the total VAT charged on the American tourister. (2)

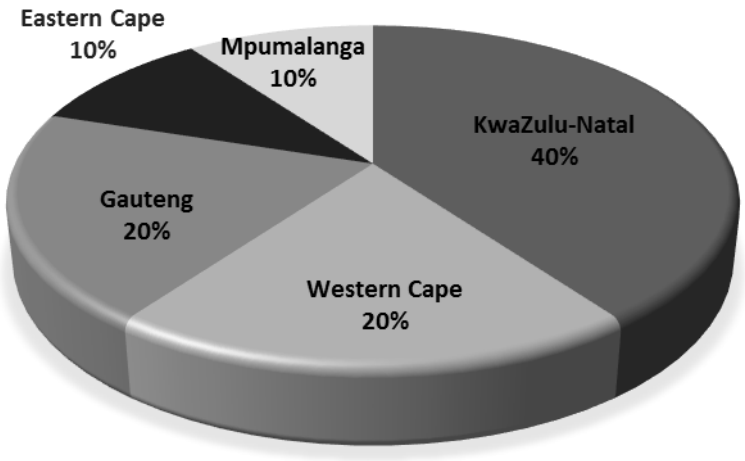
1.2.3 Explain the meaning of the scale for the Octolite Carry On. (2)

1.2.4 Determine the number of wheels on the American Tourister. (2)

1.2.5 Define *selling price* in the above context. (2)

1.3 The pie chart below indicates the percentages of people who visited the Kruger National Park from five different South African Provinces. In 2018, the Kruger National Park was visited by 1 659 793 people, from these five different provinces.

Visitors to the Kruger National Park in 2018 from five provinces



[*Source : Adapted from www.iol.co.za/travel*]

Study the pie chart and information above and answer the questions that follow.

1.3.1 Write down the total number of visitors to the Kruger National Park for 2018 in words. (2)

1.3.2 Identify the province with the highest number of visitors to the Kruger National Park in 2018. (2)

1.3.3 Calculate the total number of visitors from KwaZulu-Natal to the Kruger National Park in 2018. (2)

1.3.4 Write as a ratio, the percentage of visitors from the Western Cape to the percentage of visitors from the Eastern Cape, in the simplest form. (2)

1.3.5 Determine the probability of randomly selecting a visitor to the Kruger National Park, from the data provided above, who comes from the Free State. (2)
[32]

QUESTION 2

2.1 Mr Fortune receives a statement from the bank every month with regards to the vehicle that he purchased. The cash price of the vehicle was R151 140. Since Mr Fortune didn't have enough cash, he bought the car on hire-purchase. An example of one of his statements is given in ANNEXURE A. Study ANNEXURE A and answer the questions that follow.

2.1.1 Write down the street name used on this statement. (2)

2.1.2 Calculate the number of days included in this statement period. (2)

2.1.3 How many instalments has Mr Fortune paid, according to this statement? (2)

2.1.4 The NCA service fee includes 15% VAT. Calculate the amount of VAT charged on this service fee amount. (3)

2.1.5 Show how the outstanding capital balance value of R71 350,23 was calculated. (2)

2.1.6 Calculate the total amount of money that Mr Fortune will pay for the car over the full term of the loan. (3)

2.1.7 Hence, calculate the total amount of money that Mr Fortune would have saved if he had bought the car for cash. (3)

2.2 Kevin washes cars at a carwash over weekends to save money for his December holiday.

Kevin draws the following table in his planning:

TABLE 1: Income from washing cars

Month	June	July	Aug	Sept	Oct	Nov
Number of cars	11	17	**A**	33	20	28
Income (in Rand)	495	765	1 170	1 485	**B**	1 260

Use the table to answer the following questions.

2.2.1 Define the term *income*. (2)

2.2.2 Complete the following formula to calculate the income received per car washed.

Income (in Rand) = ... × ... (2)

2.2.3 Is this an example of direct or indirect proportion? Explain your answer. (2)

2.2.4 Calculate the missing values of **A** and **B** in the table. (4)

2.2.5 Calculate his total income from June to November. (2)

2.3 Kevin and Joan have decided to visit Phuket (Thailand) during their December holiday.

2.3.1 Kevin and Joan are planning on taking R10 000 each as spending money. Convert their total spending money to Thai Baht.
Use the exchange rate: **R0,438 per Thai Baht** (3)

2.3.2 Joan deposited R15 000 in an account at More Money Bank, 2 years ago. The bank charged 7,8% simple interest per annum. Calculate the total amount that the bank paid out after two years. (4)

2.3.3 The holiday package did not include drinks and transport on Phuket Island.
TABLE 2 below shows the cost of drinks.

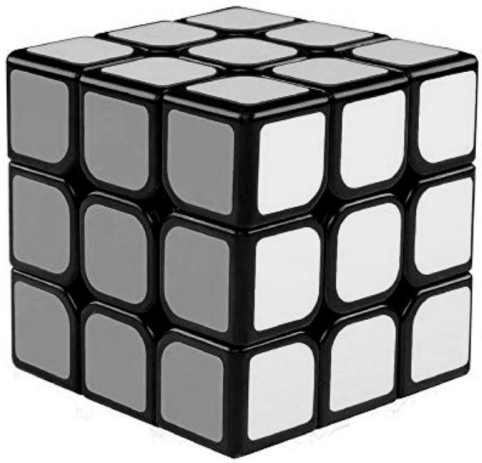
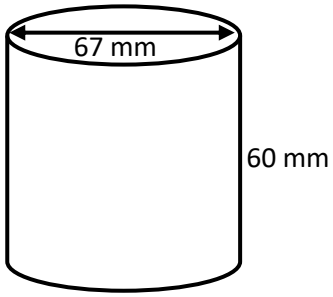
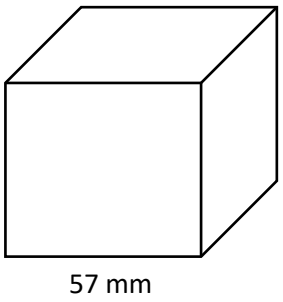
TABLE 2: Cost of drinks

	Cost per person (in Rand)
Drinks	R12, 00 per drink

Kevin and Joan agreed that each person may have one drink three times daily during their 7 day stay at the B-Lay Tong Phuket Hotel.
Calculate how much (in Rand) they will both spend on drinks for their entire stay. (3)
[39]

QUESTION 3

3.1 Magic cubes were popular 3D puzzle toys in the 1980s.
Study the two magic cubes below and anwer the questions that follow.

Cylindrical Magic Cube	Cubic Magic Cube
	
Dimensions of a cylindrical magic cube	**Dimensions of a cubic magic cube**
	

3.1.1 Calculate the radius of the cylindrical magic cube if the diameter is 67mm. (2)

3.1.2 Calculate the total volume of the cylindrical magic cube in mm^3.

The following formula may be used:

Volume of cylinder = π × radius × radius × height, where π = 3,142 (3)

3.1.3 Calculate the total surface area of the cubic magic cube in mm^2.

The following formula may be used:

Total surface area = side × side × 6 (3)

3.2 The table below represents the time taken by a player and teams to solve a magic cube. Study the table below and answer the questions that follow.

TAKE NOTE:

- **Player time** is the time taken by a player to solve the magic cube once.
- **Team time** is the total time taken by all players in a team to solve a magic cube once.

Rank	Player	Player time	Rank	Team	Team time
1	Zoë	10,8 seconds	1	A	6 minutes 53 seconds
2	Enrique	13,6 seconds	2	B	7 minutes 44 seconds
3	Thabang	16,1 seconds	3	C	9 minutes 11 seconds
4	Koos	23,1 seconds	4	D	9 minutes 17 seconds
5	Bongani	23,2 seconds	5	E	9 minutes 23 seconds
6	Lee	23,9 seconds	6	F	9 minutes 28 seconds
7	Thulani	24,3 seconds	7	G	9 minutes 41 seconds
8	Liam	24,8 seconds	8	H	9 minutes 49 seconds
9	Gregory	26,7 seconds	9	I	9 minutes 59 seconds
10	Olivia	29,3 seconds	10	J	10 minutes 13 seconds

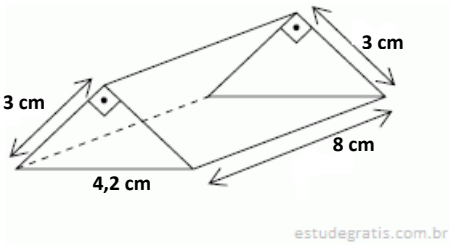
[Source: Adapted from: *www.mindgamers.redbull.com*]

3.2.1 Convert the A team's time taken to solve the magic cube to seconds. (2)

3.2.2 Calculate the total time taken by the ten players to solve the magic cube. Give your answer in minutes and seconds. (4)

3.3 The chocolate below was given to all participants at the competition. Study the diagrams below and answer the questions that follow.





3.3.1 Calculate the total area of all the rectangular sides of the chocolate pack.

You may use the following formula:
Area = Length × Width (4)

3.3.2 Calculate the perimeter of ONE triangle in mm. (3)

3.4 Study the ingredients below which are used to make fatcakes and answer the questions that follow.

INGREDIENTS (Makes 24)

- $6\frac{3}{4}$ cups of flour
- 2 teaspoons salt
- 2 tablespoons sugar
- 1 packet yeast
- Lukewarm water
- Cooking oil (for frying)



3.4.1 If one cup = 250 ml, calculate the total amount of flour used to make 48 fatcakes, in ml. (2)

3.4.2 In the cooking instructions, it states that the oil in the pan must be heated to 375 °F.

Convert 375 °F to °C. Round-off your answer to the nearest ten.

The following formula may be used:

°C = (°F – 32°) ÷ 1,8 (2)

3.4.3 How many tablespoons of sugar will be needed to make 72 fatcakes? (2)
[27]

QUESTION 4

4.1 Kevin and Joan will fly to the Kruger National Park from Johannesburg. Refer to ANNEXURE B in the ADDENDUM to answer the following questions.

4.1.1 In which general direction is Hoedspruit from Johannesburg? (2)

4.1.2 How long will it take Kevin and Joan to fly from Johannesburg to Phalaborwa? (2)

4.1.3 If Kevin and Joan fly from Johannesburg Airport at 06:59, at what time will they arrive at Phalaborwa airport? (2)

4.1.4 The average speed of an Airbus A380 is 900 km/h. If it takes 50 minutes for the Airbus to travel from Johannesburg to Nelspruit, determine the distance that it travels.

You may use the formula:

$$\textbf{Speed} = \frac{\textbf{Distance (in km)}}{\textbf{Time (in hours)}}$$ (4)

4.1.5 Determine the probability of randomly selecting a 1-hour flight. Give your answer as a percentage. (3)

4.2 Study the seating plan of an airplane on ANNEXURE C and answer the questions that follow.

4.2.1 How many exit doors are indicated on the seating plan? (2)

4.2.2 Write down the row numbers of the Economy Plus class seats that have in-seat power. (2)

4.2.3 The actual length of the airplane (from the cockpit to the end of the passenger cabin) is given as 50 m. If the scale of the seating plan is 1: 200, calculate the length of the airplane on the seating plan in mm. (4)

[21]

QUESTION 5

5.1 The data in the tables below represent the distance (in km) that the learners from Exhibition High School walked to school the morning before a Mathematical Literacy test and the marks (out of 50) that they obtained for the test.

Use the data below to answer the questions that follow.

TABLE 3: Distance (in km) walked by learners

0,2	**0,5**	**0,3**	**1,2**	**0,25**
0,75	**1,3**	**3**	**1,2**	**1,8**
2,4	**1,5**	**0,2**	**0,8**	**2,6**
3	**1,4**	**0,75**	**0,5**	**1,2**
3,2	**0,8**	**0,3**	**1**	**1,8**

TABLE 4: Marks obtained for the test

49	**38**	**37**	**30**	**39**
34	**29**	**19**	**27**	**25**
20	**28**	**43**	**33**	**41**
15	**25**	**38**	**40**	**30**
18	**30**	**39**	**28**	**28**

5.1.1 Identify the SECOND shortest distance walked by a learner. (2)

5.1.2 Determine the highest mark scored by a learner. (2)

5.1.3 Name ONE data collection instrument used to collect this data. (2)

5.1.4 Determine the median of the test marks. (3)

5.1.5 Determine the mode of the test marks. (2)

5.1.6 Calculate the mean mark for this test. (3)

5.1.7 Is the data in the table regarding the distance walked by learners, an example of continuous or descrete data? (2)

5.2 Use the distance values from TABLE 3 above to complete the frequency table on the ANSWER SHEET at the back of this question paper. Hand in this ANSWER SHEET with your ANSWER BOOK. (5)

5.3 Study the 5-number summary below to calculate the Interquartile Range (IQR) for the marks obtained by these learners.

Minimum mark	Q_1	Q_2	Q_3	Maximum mark
15	26	30	38	49

(3)

5.4 Calculate the percentage of learners who failed the test if the pass mark for the test is 25 out of 50. (3)

5.5 Refer to the data in the table regarding the distances walked and marks scored by learners on the previous page to answer questions below.

5.5.1 Determine the probability of randomly selecting a learner who walked less than 1 km on the day of the test. (2)

5.5.2 Determine the probability of randomly selecting a learner who scored more than 35 out of 50 for the test. Write your answer as a decimal. (2)

[31]

TOTAL 150

END

ANSWER SHEET

Name: _____ **GR: 12** _____

QUESTION 5.2

Distance (in km)	Tally	Frequency
0 – 0,5		
0,6 – 1		
1,1 – 1,5		
1,6 – 2		
2,1 – 2,5		
2,6 – 3		
3,1 – 3,5		
TOTAL:		