GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION

2018

10601

MATHEMATICAL LITERACY

PAPER 1

TIME: **3 hours**

MARKS: **150**

9 pages + 2 answer sheets

MATHEMATICAL LITERACY: Paper 1
1060E
10601E

X05

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(Paper 1)

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. ANSWER SHEETS: Write your name in the spaces provided and hand in your ANSWER SHEETS with your ANSWER BOOK.
3. Use the ADDENDUM as follows:
    - Use ANNEXURE A to answer Question 2.3
    - Use ANNEXURE B to answer Question 3.1
    - Use ANNEXURE C to answer Question 4.1
    - Use ANNEXURE D to answer Question 5
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 Mr Gerhardus Mouton, the head coach of the first rugby team of Success High School in Johannesburg, is shopping around for new rugby items for his team. Sports Trade is currently running a special on some of their products.

Table 1 : Pricing Guide for Sports Trade

SPECIAL OFFER VALID FOR THIS WEEK ONLY		
RUGBY SHORTS	RUGBY SOCKS	WHISTLE
		
Original price: R 149,99 **Discounted Price: R 120,00** *(each)*	**Original price: R 69,99** **Discounted Price: R 40,00** *(per pair)*	**Original price: R80,00** **Discounted Price: R 60,00** *(each)*
***** NB : All the prices above excludes 15% VAT *****		

1.1.1 For what does the abbreviation *VAT* stand? (2)

1.1.2 Identify the original price of a whistle (VAT exclusive). (1)

1.1.3 How much money is saved on one pair of rugby shorts on the discounted price (excluding VAT)? (2)

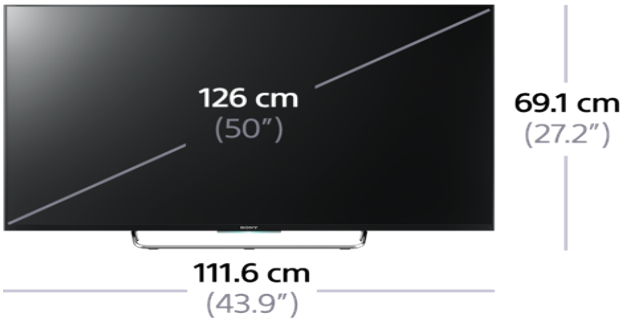
1.1.4 Determine the total cost on the discounted prices (excluding VAT) if Mr Mouton bought 25 pairs of rugby shorts, 25 pairs of rugby socks and 3 whistles. (3)

1.1.5 Show how the VAT amount of R627,00 was calculated on R4 180,00. (2)

1.1.6 Convert the discounted price for a pair of rugby socks to cents. (2)

1.1.7 Write the discounted price of a pair of rugby shorts to the discounted price of a whistle as a ratio, in the simplest form. (2)

1.2 In order to market their products, Sports Trade strategically installed flat screen televisions inside the shop. These televisions also broadcast sport related material. Refer to the diagram below and answer the questions that follow.



1.2.1 Convert the diagonal length of 126 cm of the flat screen television to metres. (2)

1.2.2 Determine the perimeter of the flat screen television in centimetres. (2)

1.3 Whilst standing in the queue, Mr Mouton's eye catches one of the flat screen televisions which is broadcasting statistics of the previous rugby world cup. The table below was shown on the television screen. Refer to the table and answer the questions that follow.

Table 2 : Statistics of the Rugby World Cup

RUGBY WORLD CUP STATISTICS			
	Points scored	Tries scored	Drop goals
New Zealand	2 303	311	10
Australia	1 645	209	7
South Africa	1 250	141	10
England	1 379	147	21
France	1 487	171	11

1.3.1 Is the data above discreet or continuous? (2)

1.3.2 Name the TWO countries that had the same number of *drop goals*. (2)

1.3.3 Determine the difference in *points scored* between Australia and South Africa. (2)

1.3.4 Write down the name of the country with the second highest *tries scored*. (2)

1.3.5 Calculate the total amount of points scored by all five countries. (2)

1.3.6 An outlier is a number which is much bigger or smaller than the rest of the values in a data set. Write down the name of the country that is the outlier in the *drop goals* column. (2)

[30]

QUESTION 2

2.1 Willie is a rugby fanatic. He is planning on going to Japan in 2019 to watch some of the matches of the Rugby World Cup. In order to do this, he must save R8 750,00 for a return flight, R3 771,00 for accommodation and R800,00 for spending money per day for the 3 days that he will be there. He will need to convert his money to Japanese Yen before leaving South Africa. He will use the exchange rate of R1 = ¥8, 02.

2.1.1 Calculate how much a 1 Yen coin is worth in South Africa. (2)

2.1.2 Convert the R800,00 to Japanese Yen. (2)

2.1.3 Calculate the total expenses for his trip (in Rand). (3)

2.1.4 Willie invested R10 000,00 two years ago at an interest rate of 6%, compounded annually. He wants to use the money from his investment to help pay for his trip to Japan. Calculate how much money Willie has available from his investment. (3)

2.2 Willie is also planning on watching some of the International Friendly matches before the start of the 2019 Rugby World Cup. He therefore decided to buy a flat screen television and to install DSTV in his flat. This way he will able to watch these matches from the comfort of his own home. While browsing the internet, Willie came across the following special promotions.





Willie doesn't have enough money to pay cash for these items and will buy these items on a hire-purchase deal. The hire-purchase deal entails the following:

- ***10% deposit***
- ***20,75% annual simple interest rate***
- ***3 years to repay***

2.2.1 Define the term *hire-purchase*. (2)

2.2.2 Identify the cash price of the less expensive option. (2)

2.2.3 Calculate the *percentage discount* on the more expensive option if the original price was R10 499,00. (2)

2.2.4 Willie decided on taking the more expensive deal. Calculate the deposit he has to pay. (2)

2.2.5 Identify the interest rate asked on the financed amount. (2)

2.2.6 Willie paid R899,90 as a deposit. Calculate the amount payable after 3 years, excluding the deposit that he already paid. (5)

2.2.7 Willie already made six monthly payments. Determine the number of months left on his repayment term. (2)

2.3 Willie wants to ensure that he will have enough money for his trip to the 2019 Rugby World Cup and therefore decided to keep a close eye on his finances. He obtained a bank statement to check all his transactions and to see if he could pay less in bank charges.

The following transactions were made by Willie during August 2018 on his A7 Achievers account from Commercial Bank:

- 1 × ATM cash withdrawal of R1000,00 from a Commercial Bank ATM.
- 1 × ATM cash withdrawal of R900,00 from another bank's ATM.
- An external debit order for R950,00.
- An internal debit order for R470,00.
- 2 × external stop orders to third parties for R2 750,00 and R3 250,00 respectively.
- His salary of R23 550,00 is deposited electronically into his account every month.
- 1 × ATM cash deposit of R2 450,00.

Use ANNEXURE A in the ADDENDUM, for an A7 Achievers account Pricing guide.

Calculate Willie's bank fees for August 2018 by completing ANSWER SHEET 1 at the end of your question paper. Hand in your ANSWER SHEET together with your ANSWER BOOK. (10)
[37]

QUESTION 3

3.1 Rugby is a very popular and fast growing sport at Success High School. The school's Governing Body has decided to approve the creation of a new rugby field.
Refer to the diagram of the new rugby field on ANNEXURE B to answer the questions below.

3.1.1 Define the term *perimeter*. (2)

3.1.2 Determine the perimeter of the rugby field. (2)

3.1.3 What is the length of the rugby field? (3)

3.1.4 Calculate the area of the rugby field that has to be covered with grass.
Use the formula : ***Area = length*** x ***width*** (4)

3.1.5 Sods of grass are used to cover the rugby field. Calculate the area of one sod of grass in square metres if the dimensions of one sod of grass are 500 mm × 700 mm. (3)

3.1.6 Determine the number of sods of grass that will be needed to cover the entire rugby field. (2)

3.2 To irrigate the rugby field, a special cylindical water tank is used. The water tank is 3,5 m long and has a diameter of 200 cm.



Refer to the picture and the information above to answer the questions that follow.

3.2.1 Determine the radius of the water tank in cm. (2)

3.2.2 Calculate the amount of water (in litres) in the water tank when it is full.
You may use the following formula: $\boldsymbol{Volume = \pi \times (radius)^2 \times length}$
Use: $\boldsymbol{\pi = 3{,}142}$
Also note that: $\boldsymbol{1\ 000\ cm^3 = 1\ litre}$
$\boldsymbol{1m^3 = 1\ 000\ l}$ (6)

3.2.3 The school wants to repaint the water tank. Calculate (in square metres) the outside surface area of the water tank that will be painted.
You may use the formula: $\boldsymbol{Surface\ area = 2 \times \pi \times radius\ (radius + length)}$
Use: $\boldsymbol{\pi = 3{,}142}$ (4)

[28]

QUESTION 4

4.1 Mr Mouton is planning on taking his best rugby players to the High School's Rugby 7s Series 2018, hosted by Hermanus High School.
Hermanus is a town on the southern coast of the Western Cape province of South Africa.

Refer to ANNEXURE C in the ADDENDUM, the road map of South Africa that shows the national road network and answer the questions that follow.

4.1.1 Identify the national road that Mr Mouton must use if he travels from Johannesburg and stops in Bloemfontein to stretch his legs. (2)

4.1.2 If Mr Mouton leaves Johannesburg and travels on the N1 in a southerly direction, what is the first town on his way as indicated on the map? (2)

4.1.3 How many national roads connect to Bloemfontein? (2)

4.1.4 Name the type of scale used on this map. (2)

4.1.5 Identify the national road that follows the coastline on the eastern side of South-Africa. (2)

4.1.6 The number scale on this map is 1: 10 000 000. Explain what this scale means. (2)

4.1.7 Hence, use the scale in Question 4.1.6 to determine the distance in kilometres (as the crow flies) between Johannesburg and Hermanus, if the distance on the map between these two cities measures 13 cm. (3)

4.1.8 It will take Mr Mouton 12 hours to drive the actual distance of 1 415 km between Johannesburg and Hermanus. Calculate his average speed.
Round-off your answer to the nearest km/h.

You may use the following formula: **Average speed =** $\frac{\textbf{\textit{Distance}}}{\textbf{\textit{Time}}}$ (3)

4.1.9 The minibus that Mr Mouton will be travelling in, consumes 7, 8*l* / 100 km. Calculate how much money he will spend on fuel for a one-way trip from Johannesburg to Hermanus (1 415 km) if the cost of fuel is R14,70 per litre. (4)

4.2 The weather forecast predicts a 0,652 chance of rain for the day of the final of the High Schools Rugby 7s Series.

4.2.1 Write the weather forecast prediction as a simplified fraction. (2)

4.2.2 Write down the probability for rainfall as a percentage. (2)

4.2.3 Does this mean that it will definitely rain on that day? Explain your answer. (2)
[28]

QUESTION 5

5.1 Mr Mouton has to submit his player information to Hermanus High School in order for them to successfully register for the High Schools Rugby 7s Series. He is entering two teams for this tournament. Study the tables on ANNEXURE D carefully and answer the questions below.

5.1.1 Arrange the mass of the players in both teams together in **ascending** order. (2)

5.1.2 Identify the tallest player out of all the players and write down his height. (2)

5.1.3 Determine the modal mass of the players in team B. (2)

5.1.4 Identify the minimum age from team A. (2)

5.1.5 Determine the median BMI of the players in team A. (2)

5.1.6 Calculate the mean height of the players in team A. (3)

5.1.7 Use the formula: $\textbf{BMI} = \frac{\textit{Weight (kg)}}{\textit{Height (m)}^2}$ to calculate the BMI of player 4 in team B. (2)

5.1.8 Explain why the data on the height of the players can be regarded as continuous data. (2)

5.2 Use the information from the table on ANNEXURE D in the ADDENDUM on the heights of ALL the players to complete the frequency table on ANSWER SHEET 1 at the end of your question paper. (5)

5.3 Use the information from the table on ANNEXURE D in the ADDENDUM on the masses of ALL the players to complete a **horizontal bar graph** on ANSWER SHEET 2. (5)

[27]

TOTAL: 150

END

ANSWER SHEET 1

Name: _____ GR 12 - ____

QUESTION 2.3

TRANSACTIONS	**Fee / Cost (in R)**
Monthly account fee	**R**
ATM cash withdrawals:	
Commercial Bank ATM	**R**
Other bank	**R**
External debit order	**R**
Internal debit order	**R**
External stop order	**R**
Online cheque deposit	**R**
Cash deposit	**R**
Total for bank fees	**R**

(10)

QUESTION 5.2

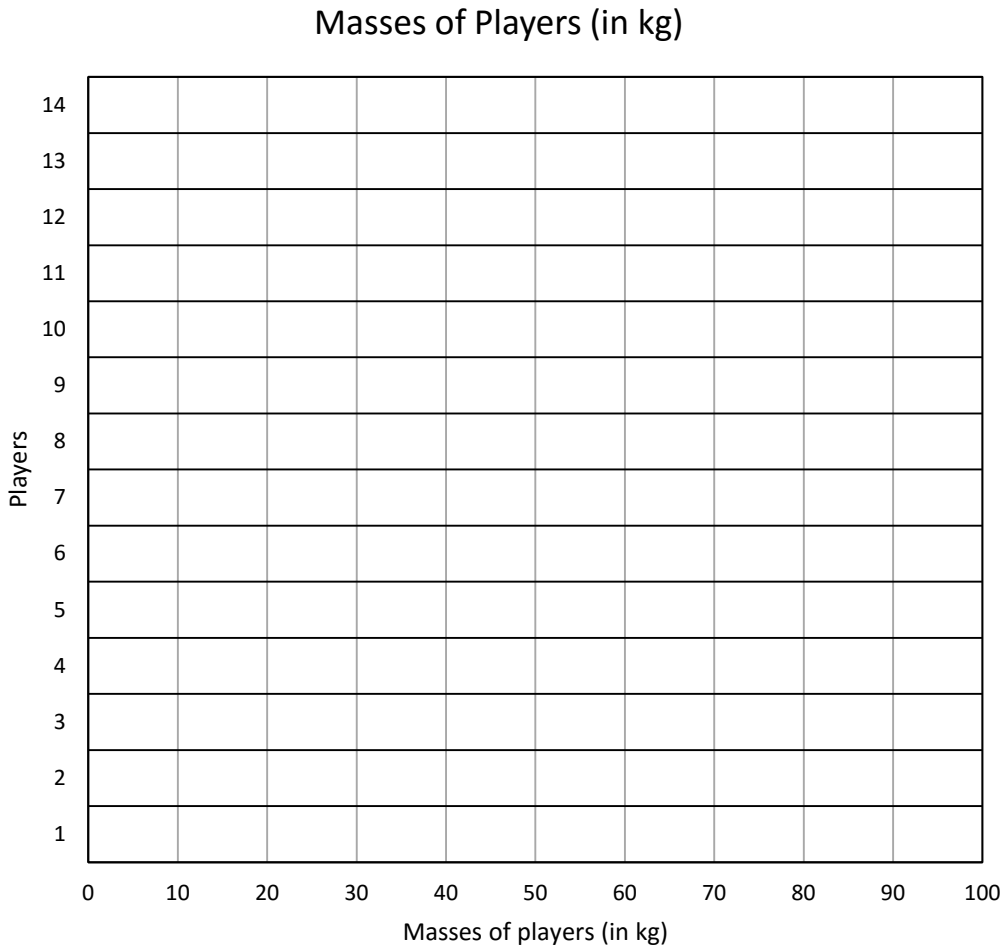
Height (in m)	**Tally**	**Frequency**
1,5 – 1,62		
1,63 – 1,75		
1,76 – 1,85		
1,86 and taller		

(5)

ANSWER SHEET 2

Name: _____ GR 12 - ____

QUESTION 5.3



(5)