



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2016

MATHEMATICAL LITERACY P1

MARKS: 150

TIME: 3 hours



This question paper consists of 15 pages and an addendum with annexures.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2.
 - 2.1 Use addendum with ANNEXURES for the following questions:
ANNEXURE A for QUESTION 4.1
ANNEXURE B for QUESTION 5.1
 - 2.2 ANSWER SHEET 1 for QUESTIONS 4.1.4 and 4.1.7.
Write your GRADE and YOUR NAME in the spaces provided on the ANSWER SHEET 1 and hand in the ANSWER SHEET 1 with your ANSWER BOOK.
3. Number the questions correctly according to the numbering system used in this question paper.
4. Diagrams are not necessarily drawn to scale.
5. Round off ALL the final answers according to the context used, unless stated otherwise.
6. Indicate units of measurement, where applicable.
7. Start EACH question on a NEW page.
8. Show ALL calculations clearly.
9. Write neatly and legibly.

QUESTION 1

1.1

Layla, a 43-year-old woman took a retirement annuity (RA) policy with an insurance company. The retirement annuity lump sum paid out to the policy holder is taxed by the SARS. In November 2015 she received a RA statement for this policy.

TABLE 1: Extract of retirement annuity statement as at 3 October 2015 for the financial year 2014–2015.

Policy number	7 011 567 723
Policy type	Flexi Pension Pure (No cover)
Investment portfolio	Smoothed Bonus Portfolio
Monthly contribution	R631,94
Maturity value	Minimum: R104 227,00 to Maximum: R506 474,00
Maturity date	1st AUGUST 2032
Death benefit	R122 138,71
Premium increases (fixed)	10,00% per annum
Last instalment	1st July 2032
The next statement will be issued on the 3 rd of October 2016 for the year 2015–2016.	

Use information from TABLE 1 to answer the following questions:

- 1.1.1 Write the abbreviation SARS in full. (2)
- 1.1.2 Determine the period (in months) that the policy is to run from 1st November 2016 to the maturity date. (3)
- 1.1.3 Write the maximum maturity value in words. (2)
- 1.1.4 Calculate the difference between the death benefit amount and the minimum maturity value amount to be received at the maturity date. (3)
- 1.1.5 Write down the ratio of death benefit to the maximum maturity value in the form **1** : (3)
- 1.1.6 Write down the monthly contribution for the financial year 2014–2015. (2)
- 1.1.7 Calculate the total annual contribution for the financial period 2013–2014. (5)

- 1.2 Bonny designs, prints and posts birthday gift vouchers for different companies. Below is a promotion description advert for 500 vouchers and the cost involved.

TABLE 2: Promotion Description

Birthday Gift Vouchers		
Redemption item	Gift Voucher	
Begin Date	1-April 2016	
End Date	30 April 2016	
Cost of Sales%	35%	
No. of recipients	500	
Meal Voucher Value	\$15,00	
Expenses	Vendor	Cost Estimates (Dollars)
Printing	Bet Printers	\$225
Postage	Post Office	\$200
Graphics Design	Premier Designs	\$175
Labour	In house labour	\$50
	Total Budget	\$650

[Source: www.restaurantowner.com]

Currency: 1\$(US dollar) = R15,409095

Use the information from TABLE 2 to answer the following.

- 1.2.1 Show how the total budget value of \$650 was calculated. (2)
- 1.2.2 Express the graphics design expense as a percentage of the total budget. Give your answer to the nearest percentage. (3)
- 1.2.3 Calculate the total cost (in dollars) of the meal vouchers issued out during this month. (3)
- 1.2.4 Convert the total cost of meal vouchers issued into rands. (2)
- 1.2.5 Calculate the postage cost of ONE gift voucher in dollars. (2)
- 1.2.6 Write down the promotion period for the meal vouchers. (2)

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QUESTION 2

- 2.1 Nicky is a candle maker and sells the candles to people where she stays and in church.

PICTURE: Circular and rectangular candles



[Source: www.all-free-download.com]

(1 m³ = 1 000 000 cm³ and 1 litre = 1 000 cm³)

[Source: www.all-free-download.com]

Study the picture of the respective candles above and answer the following questions.

- 2.1.1 Calculate the volume (in cm³) of wax needed to make a cylindrical candle. (Ignore the hole made for the wick)

You may use the following formula:

$$\text{Volume of a cylindrical candle} = \pi \times (\text{radius})^2 \times \text{height}$$

where $\pi = 3,142$ (4)

- 2.1.2 Nicky melts five litres of wax a day and pours it into candle moulds. Calculate the number of cylindrical candles she can make from five litres of wax. (3)

- 2.1.3 Calculate the weight of wax to make a cylindrical candle in grams. (Give your answer to the nearest gram.)

You may use the following formula:

$$\text{Candle weight (g)} = \text{paraffin wax density} \times \text{volume of one candle,}$$

Where the paraffin wax density = 0,93 g / cm³ (3)

- 2.1.4 Calculate the total surface area (TSA) of a rectangular candle made by Nicky.

You may use the following formula:

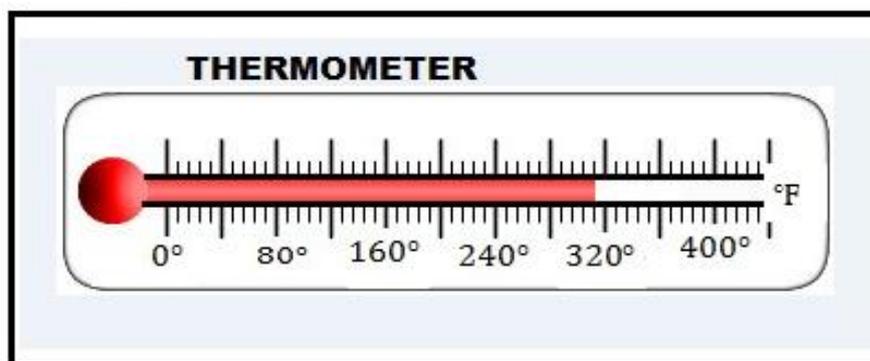
$$TSA = 2(l \times w) + 2h(l + w) \quad (4)$$

- 2.1.5 Study the box below that Nicky will use to deliver the cylindrical candles and answer the questions that follow.



Calculate the number of cylindrical candles that will be packed upright for the first layer at the bottom of the box. (4)

- 2.1.6 Nicky uses a thermometer to check the wax temperature when it is heated. Study the diagram supplied and answer the questions that follow.



[Source: Adapted from www.yms.co.za]

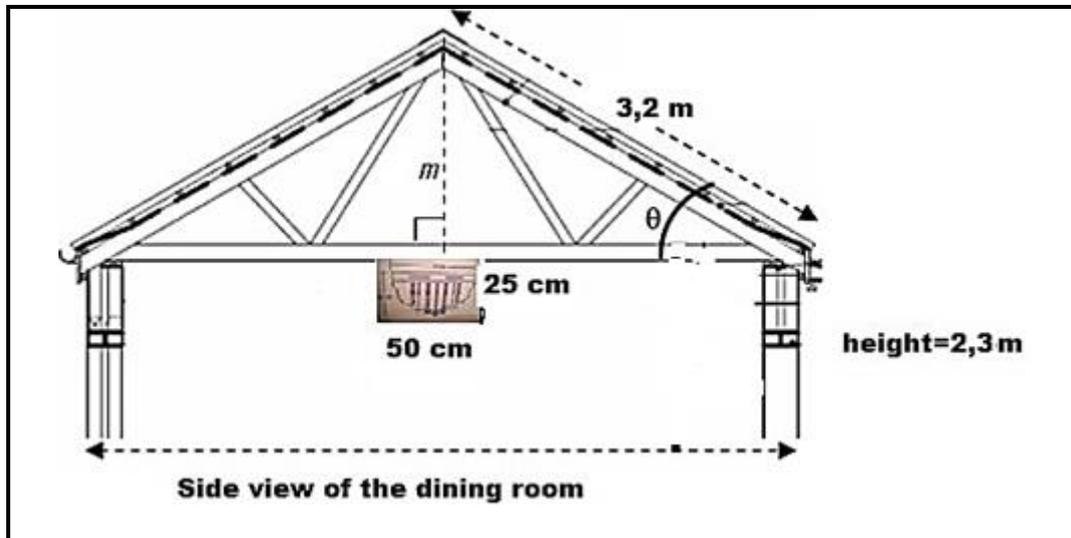
- (a) Write down the reading on the thermometer above. (2)
- (b) Convert the temperature reading on the thermometer to degrees Celsius (°C).

You may use the following formula:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \div 1,8 \quad (3)$$

- 2.2 Nicky bought chandelier lights at Lite City for her dining room. The area of her dining room ceiling is 12 m^2 . The rectangular light is 50 cm long and the height is 25 cm .

Study the diagram below that shows a side view of the dining room and position of the light to answer the questions that follow.



- 2.2.1 Calculate the height from the floor to the bottom of the light. Give your answer in metres. (3)
- 2.2.2 Calculate the width of the dining room if the length is $1,7 \text{ m}$ more than the height of the dining room.

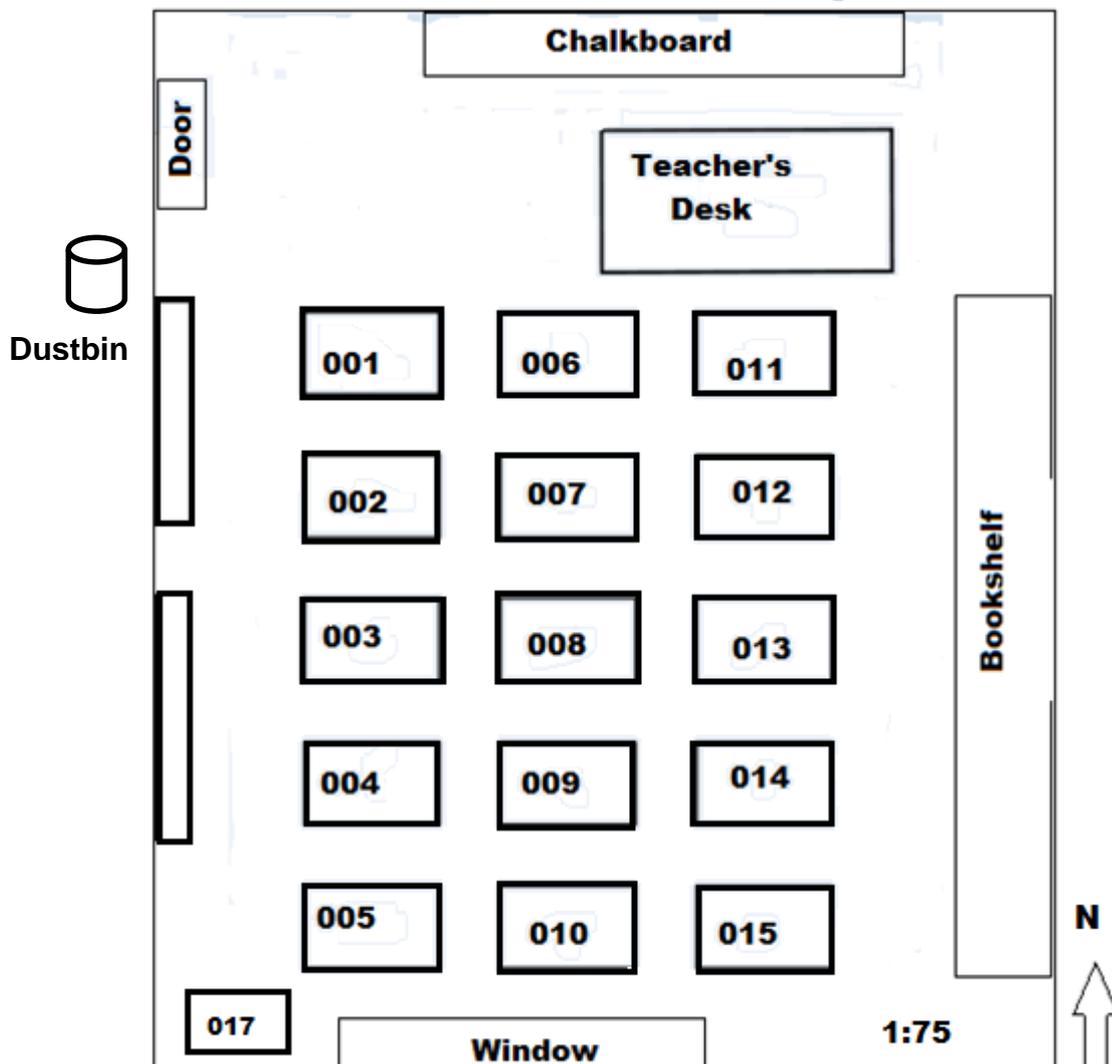
You may use the formula:

$$\text{Area of rectangle} = \text{length} \times \text{width} \quad (3)$$

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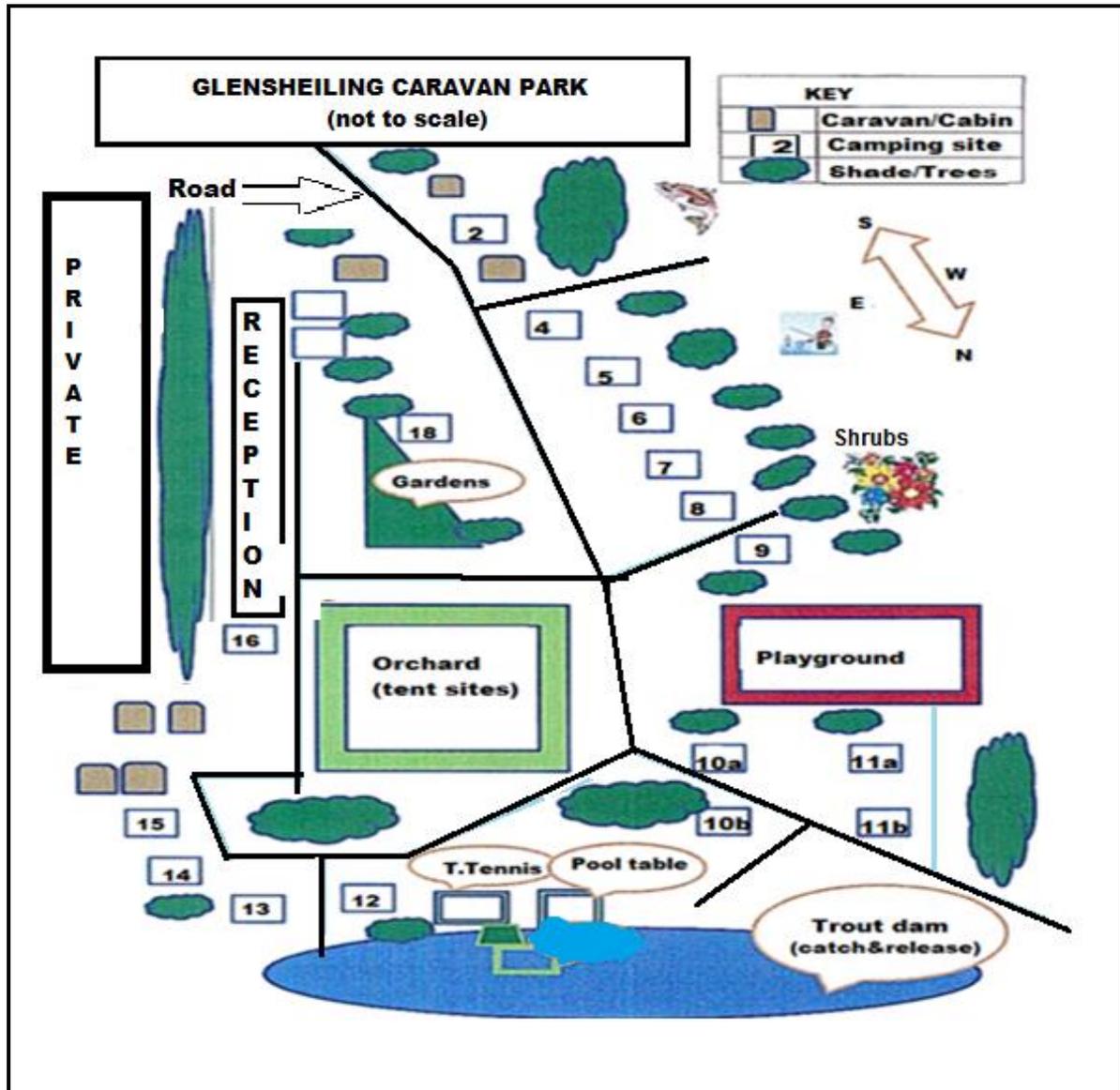
QUESTION 3

- 3.1 Grade 12 learners use stickers with their examination numbers that are stuck on their desks. Study the classroom seating plan below for Grade 12 learners during their final examination in 2015 and answer the questions that follow.



- 3.1.1 Give the compass direction of a learner with examination number **008** from learner with examination number **005**. (2)
- 3.1.2 Identify the scale of the map. (2)
- 3.1.3 Calculate the actual dimensions of the bookshelf in metres. (3)
- 3.1.4 A learner with an examination number 015 arrived late. She was not allowed to walk in between the other desks. Draw the route she used to reach her desk. (2)
- 3.1.5 Determine the number of learners that started writing their examination on time for this session if all desks were occupied. (2)
- 3.1.6 Determine the probability that a learner randomly selected had an even examination number. (2)

3.2 Below is the map of Glensheiling Caravan Park in KwaZulu-Natal.



[Source: www.glensheiling.co.za]

Use the map of Glensheiling Caravan Park above to answer the following questions.

- 3.2.1 Determine the number of camping sites north of the playground. (2)
- 3.2.2 Leeckay is at reception and informed that 11b is allocated to him. Write down the directions for him to get to his camping site. (3)
- 3.2.3 Determine the number of caravans/cabins shown on the layout. (2)
- 3.2.4 One camping site has trees and shrubs behind it and one tree adjacent to it. Write down the number displayed on this camping site. (2)
- 3.2.5 Name ONE of the recreational facility close to the Trout Dam. (2)

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QUESTION 4

4.1 The South African rugby team (Springboks) played against New Zealand rugby team (All Blacks) during the World Cup. Study the sample of Springboks and All Blacks players' test statistics provided in ANNEXURE A and answer the questions that follow.

4.1.1 Calculate the average weight for the Springbok team's players. (3)

4.1.2 Identify the value of an outlier from the All Blacks players' points. (2)

4.1.3 Determine the modal heights for both teams. (2)

4.1.4 Complete the frequency table for the number of matches played by both the All Blacks and Springbok players in this sample.
Use the table drawn in ANSWER SHEET 1 to answer this question.

Interval	Tally	Frequency
0 – 30		
31 – 60		
61 – 90		
91 – 120		
121 – 150		

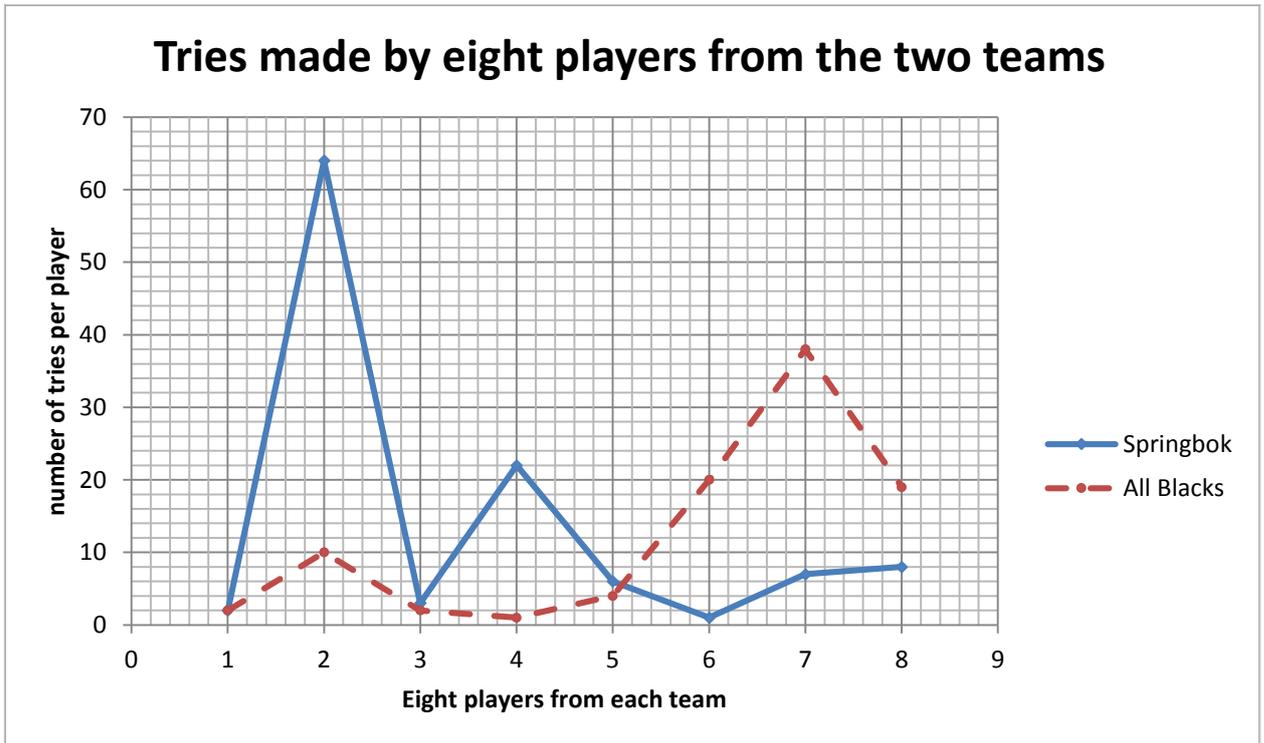
(5)

4.1.5 Explain the meaning of the term *probability*. (2)

4.1.6 Determine the probability of randomly selecting a player of this sample of Springboks and All Black players with a name starting with J. Write your answer as a percentage. (2)

4.1.7 The heights of the first five Springbok players are plotted. Plot the heights of the first five All Blacks players to form a double bar graph. Use the graph for QUESTION 4.1.7 that is provided on ANSWER SHEET 1. (5)

4.1.8 Use the graph that shows the tries scored by eight players from the All Blacks and Springboks teams below to answer the questions that follow.



- (a) Calculate the median tries for All Blacks team. (3)
- (b) Determine the range of the tries for the Springboks team. (3)
- (c) Identify the type of graph displaying the players' tries. (2)

- 4.2 South Africa is a nation of diversity, with a wide variety of cultures, languages and religious beliefs. Study the table below showing the census results for 2006 and 2011 to answer the questions that follow.

TABLE 3: SOUTH AFRICA'S POPULATION – CENSUS 2006 and 2011

	Population group	2011		2006	
		Number	% of total	Number	% of total
1.	African	41 000 938	79,2	37 662 900	79,5
2.	White	4 586 838	B	4 365 300	9,2
3.	Coloured	4 615 401	B	4 198 800	8,9
4.	Indian/Asian	1 286 930	2,5	1 163 900	2,4
5.	Other	280 454	0,5	-	
	TOTAL	A	100%		100%

[Source: www.statssa.co.za]

- 4.2.1 Identify the median population group in South Africa in 2011. (2)
- 4.2.2 Calculate the value of **A**, the total population in South Africa in 2011. (2)
- 4.2.3 Identify population groups with the difference of 28 563 in numbers in 2011. (2)
- 4.2.4 Identify the population group that formed the minority in South Africa in 2006. (2)
- 4.2.5 Calculate the value of **B**, the percentage of the white population group. (3)

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QUESTION 5

- 5.1 Lindi received an account from a medical institution. People take out medical aid that deducts a certain amount from their salaries monthly and pays their medical bills. They become members of that medical aid. It does not pay everything and sometimes the patients are asked to pay a certain amount by the medical institution attended.

Study the statement in ANNEXURE B and answer the questions that follow.

- 5.1.1 Name the institution that issued the statement. (2)
- 5.1.2 Determine the amount in arrears indicated on the statement. (2)
- 5.1.3 Determine the amount paid by the medical aid for elastocrepe. (2)
- 5.1.4 Identify the amount the patient is liable to pay for the consultation on the 20 November 2015 (2)
- 5.1.5 Show how the total amount due was calculated. (2)
- 5.1.6 Give a reason why Lindi consulted the doctor on 20 November 2015. (2)
- 5.1.7 Calculate the price of the urine dipstick including Value Added Tax (VAT). VAT = 14% (3)
- 5.1.8 Write down the number of months the outstanding amount was due. (2)
- 5.2 Nonine fell sick and consulted a doctor. Use the table below that shows the medication given to her to answer the questions that follow.

Table: Certified copy of doctor's script (some information is omitted)

Type of medication	Volume	No. of days
Flusin DM: Take two medicine measures 10 ml three times a day	Syrup 100 ml	10
Ponstan 50 mg/5 ml: Take three medicine measures (15 ml) four times a day	200 ml	10
Augmentin ES 600: Take two medicine measures (10 ml) twice a day**complete course**	100 ml	5

- 5.2.1 Calculate the total number of millilitres of medicine measures that Nonine has to take in the morning at breakfast and evening at supper. (2)

5.2.2 Calculate the remaining amount of Augmentin ES 600 if it is not taken at all on the last day. (2)

5.3 Springbok and All Blacks match statistics is displayed below:

TABLE 4: Match statistics for All Blacks and Springbok teams

Match statistics		
Teams →	Springbok	All Blacks
Ball possession	40%	60%
Tackles	116	84

Express the percentage ball possession of the team that has the highest percentage in a simplified common fraction. (2)
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TOTAL: 150

GRADE:

NAME OF LEARNER:

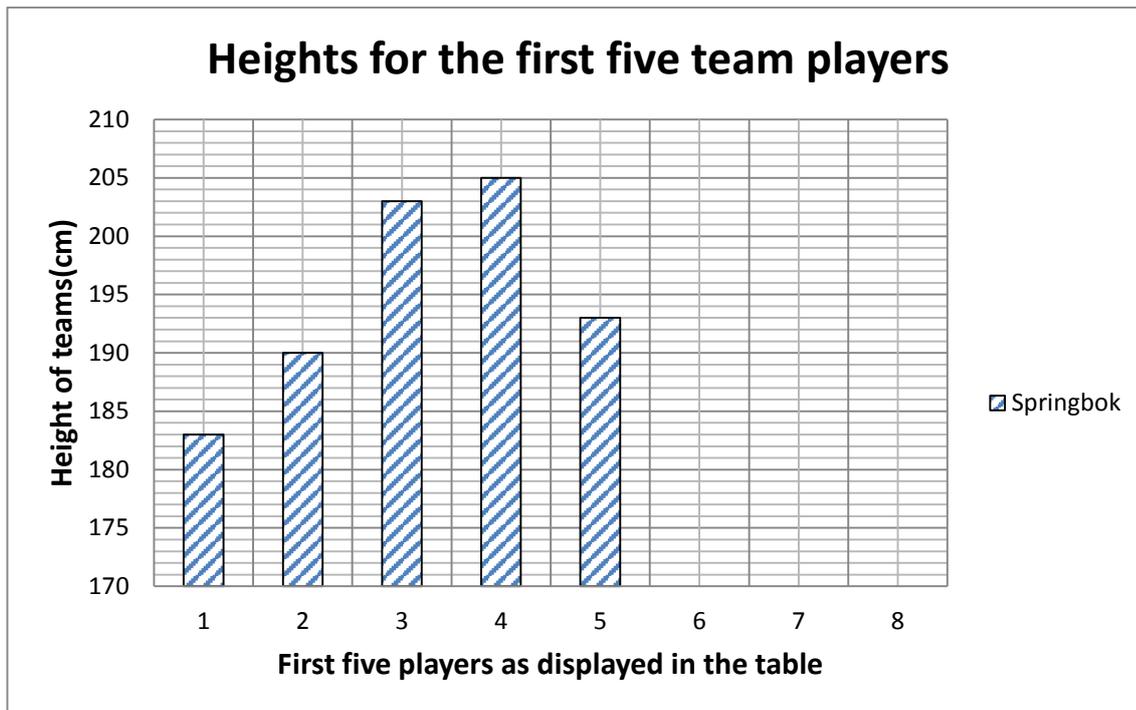
ANSWER SHEET 1

QUESTION 4.1.4

Interval	Tally	Frequency
0 – 30		
31 – 60		
61 – 90		
91 – 120		
121 – 150		

(5)

QUESTION 4.1.7



(5)

