

**Grade 10 Mathematical Literacy****MARKS: 150****TIME: 3 hours****QUESTION 1**

- 1.1 Calculate the following:
- 1.1.1.  $3,5(7,45 - 2,98)$  (1)
- 1.1.2  $35 + 12 \times 4$  (1)
- 1.1.3  $\frac{3}{4}$  of R375 (2)
- 1.1.4  $\frac{3}{4} + 1\frac{1}{2}$  (1)
- 1.2 A pair of jeans costs R299. How much will you pay for them if you get a  $33\frac{1}{3}\%$  discount? (2)
- 1.3 The dilution instructions on an energy sports drink concentrate are: dilution ratio (concentrate and water) 1 + 4.
- 1.3.1 Explain what is meant by this instruction. (2)
- 1.3.2 How many ml of concentrate and how many ml of water do you need to make up 1 litre of energy drink? (2)
- 1.3.3 If your friend mixes  $3\frac{1}{2}$  cups concentrate with 15 cups of water, will his energy drink taste the same as yours? Explain your answer. (3)
- 1.4 Vusi works at a car-wash. He earns R55 a day plus R10 for every car he washes. Calculate how much he earned if he:
- 1.4.1 washed 5 cars. (2)
- 1.4.2 washed 7 cars (2)
- 1.4.3 washed  $n$  cars. (2)
- 1.5 Fatimah is getting a 5,5% increase in salary and Ali is getting an increase in salary of R292,50 more per month. Fatimah earns R4 575 per month and Ali earns R6 500 per month.
- 1.5.1 Determine Fatimah's new salary per month. (2)
- 1.5.2 Who received the greater increase in terms of actual money? (1)
- 1.5.3 Who received the greater percentage increase? Show your working. (2)
- 1.6 Prisilla earned R1 725 for 15 days work. Determine how much she would earn if she worked for 20 days. (3)
- 1.7 The scale on a map is 1:50 000. If the distance between two towns on the map is 3,7cm, determine the distance between the towns in kilometers. (4)

1.8 Bongani sells small wire and bead items at the side of the road. He records his earnings for a week. Use the information below to answer the questions that follow:

	Earnings
Monday	R49,50
Tuesday	R172,00
Wednesday	R185,50
Thursday	R113,50
Friday	R139,00
Saturday	R405,00
Sunday	R54,50

- 1.8.1 Calculate his mean earnings per day. (3)
- 1.8.2 Determine his median earnings for the week. (2)

1.9 Use the diagrams alongside, and the formulae below to answer the following questions:

Formulae:

Perimeter rectangle =  $2 \times (l + b)$

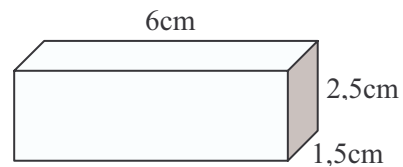
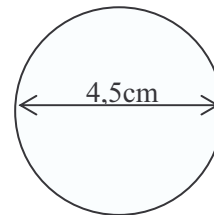
Area rectangle =  $l \times b$

Volume of a rectangular prism =  $l \times b \times h$

Circumference of a circle =  $2 \times \pi \times r$

Area of a circle =  $\pi \times r^2$

Where  $\pi = 3,14$



- 1.9.1 Calculate the area of the rectangle. (2)
- 1.9.2 Calculate the circumference of the circle. (2)
- 1.9.3 Calculate the volume of the box. (2)
- 1.9.4 Calculate the surface area of the box. (4)

[47]

**QUESTION 2**

2.1 A bank offers 12% interest per annum. Describe, in your own words, what is meant by word interest in this context. (3)

2.2 A person invests R1 000,00 at an annual interest rate of 12% for a period on 6 years. Interest is compounded annually. The table alongside is a statement of the investment account.

	Interest credited	Balance
Opening balance		R1 000,00
End year 1	R120,00	R1 120,00
End year 2	R134,40	R1 254,40
End year 3	R150,53	R1 404,93
End year 4	R168,59	R1 573,52
End year 5	R188,82	(a)
End year 6	(b)	(c)

2.2.1 Why is the interest earned by the person at the end of year 2 not the same as the interest earned at the end of year 1? (2)

2.2.2 Calculate the values of a, b and c (6)

2.2.3 How much interest did the person earn over the 6 year period? (2)

2.2.4 Express the amount of interest earned over the 6 year period as a percentage of the amount invested. (2)

2.2.5 How much interest would the person have earned over the 6 year period if interest had not been compounded – i.e. the person had earned 12% simple interest per year for the period? (3)

**[18]**

**QUESTION 3**

A herbal medicine dosage pamphlet gives the following rule for determining a child's dosage in terms of the adult dosage:

Young's rule: Divide the child's age by the child's age plus 12.

Example: dosage for a 4 year old: 4 divided by  $(4+12) = \frac{1}{4}$  or 0,25 of the adult dosage.

Answer the questions that follow (which refer to doses of herbal medicine) using this formula.

3.1 What fraction of an adult dosage must a 12 year old take? (3)

3.2 If the adult dosage of a certain medicine is 60 drops, how many drops should an eight year old child be given? (5)

3.3 A mother gives her child 4 drops of medicine. The adult dosage is 20 drops. How old is the child? (6)

**[14]**

**QUESTION 4**

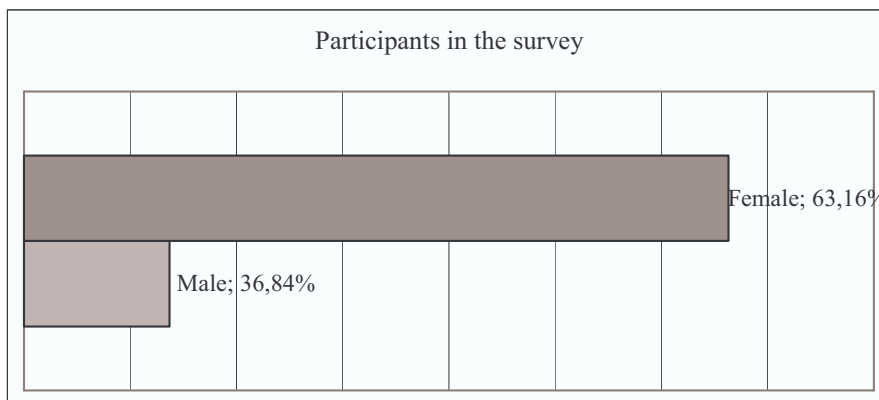
A school counselor conducted a survey among a group of high school students using the following survey slip:

Survey (please tick the correct boxes)			
Sex:	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
Age:	<input type="checkbox"/> 13 -14	<input type="checkbox"/> 15 - 16	<input type="checkbox"/> 17 – 18
How much pressure do you feel to achieve at school?			
<input type="checkbox"/> None	<input type="checkbox"/> A little	<input type="checkbox"/> A lot	<input type="checkbox"/> An unbearable amount

- 4.1 Show, by completing the survey slip on the answer sheet, how Samantha – a 14 year old girl who feels a lot of pressure to achieve at school – would complete the survey form. (3)
- 4.2 The counselor has summarised the data from all of the completed survey forms in the table below. Use this summary to answer the questions that follow:

	Male			Female		
	13 – 14	15 – 16	17 – 18	13 – 14	15 – 16	17 – 18
None	4	1	-	5	4	4
A little	9	4	3	7	4	6
A lot	1	3	1	3	6	8
An unbearable amount	3	4	2	2	4	7

- 4.2.1 How many males and how many females participated in the survey? (2)
- 4.2.2 The counselor wrote in his report: “*more than two out of every five teenagers feel either a lot or an unbearable amount of pressure to achieve at school*”. Show how the counselor could have come to this conclusion. (4)
- 4.2.3 Do boys and girls experience this pressure equally or differently? Substantiate your answer using the information in the table? (5)
- 4.2.4 The counselor illustrated his report with the following graph:



- (a) What impression does the graph create about the number of male and female participants? (2)
- (b) Is this impression correct? Substantiate your response (3)
- (c) What has the counselor done in developing the graph to create that impression? (2)

4.2.5 The counselor has summarised the data in a different way in the table below

	Male			Female		
	13 – 14	15 – 16	17 – 18	13 – 14	15 – 16	17 – 18
None	65%	42%	a	71%	44%	40%
A little						
A lot	35%	58%	b	29%	56%	60%
An unbearable amount						

- (a) By referring to the earlier table show that the values of a and b are both 50%. (3)
- (b) By comparing the responses for the females according to age describe the trend in the data by rewriting the sentence, making the best choices from the words in brackets:  
“(Older/younger) girls are more likely to experience a lot or an unbearable amount of pressure than (older/younger) girls”. Substantiate your claim. (4)
- (c) What graph would you choose to illustrate the observation described in (b)? Why would this type of graph illustrate the point most effectively? (4)

[32]

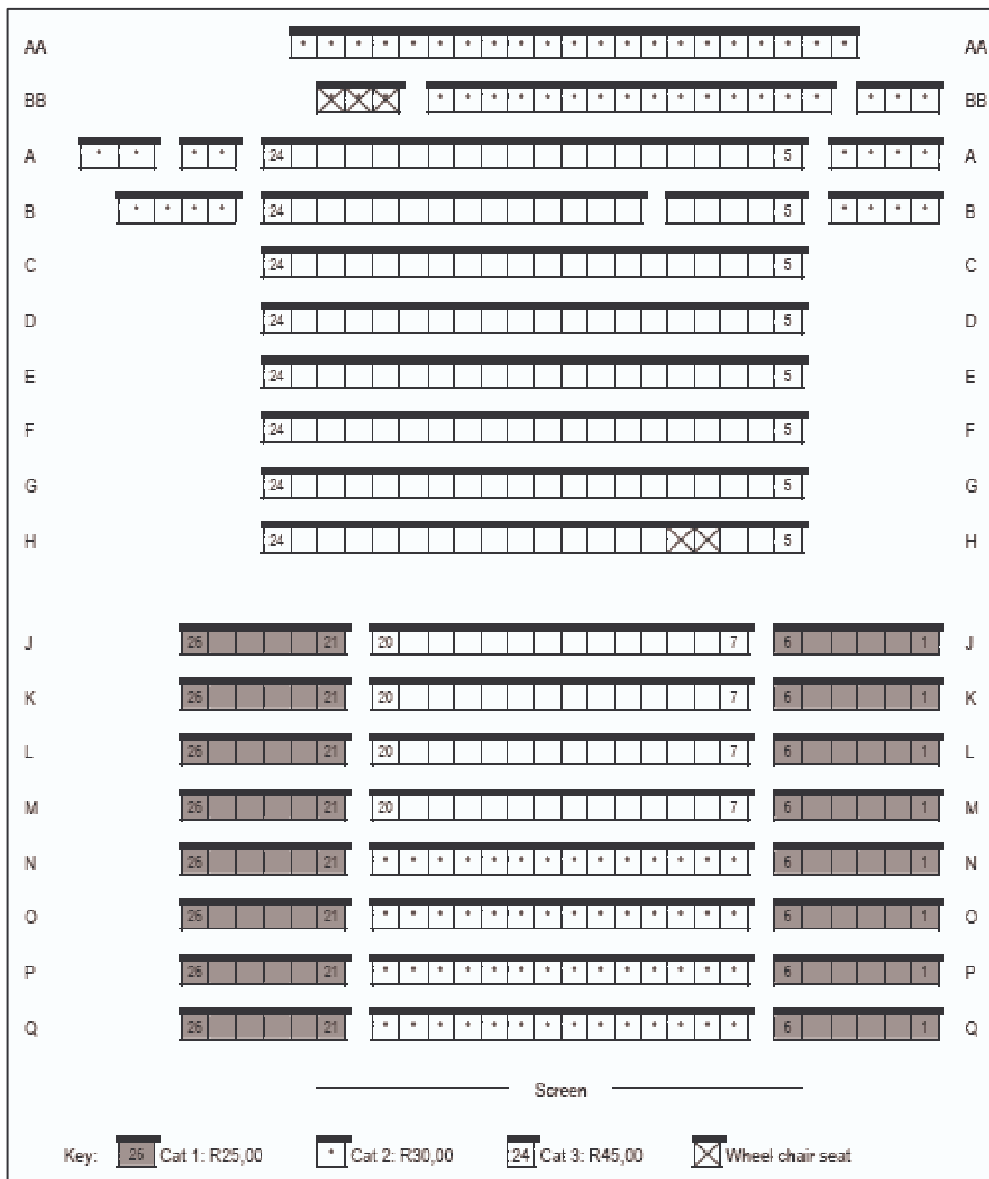
**QUESTION 5**

5.1 The timetable for movies at the local cinema is shown alongside. Use it to answer the questions that follow:

Date	Cinema	Available show times					
		1	2	3	4	5	6
Wed 17 Oct	18	09:45	12:15	15:00	17:45	20:15	22:45
Thu 18 Oct	18	15:00	17:45	20:15	22:45		
Fri 19 Oct	17	09:15	11:45	14:45	17:00	19:30	22:15
Sat 20 Oct	17	09:15	11:45	14:45	17:00	19:30	22:15
Sun 21 Oct	17	09:15	11:45	14:45	17:00	19:30	
Mon 22 Oct	17	09:15	11:45	14:45	17:00	19:30	
Tue 23 Oct	17	09:15	11:45	14:45	17:00	19:30	22:15

- 5.1.1 In which cinema will the movie be on Fri? (1)
- 5.1.2 On which day of the week is it possible to watch a movie at 3pm? (2)
- 5.1.3 How long after the start of show 2, does show 3 start on Friday? (3)
- 5.1.4 How long after the start of show 3, does show 4 start on Friday? (3)
- 5.1.5 Hence, or otherwise, estimate how late the last movie will end on Friday. Justify your answer (4)

5.2 The seating plan for the cinema is shown below. The key (at the bottom of the plan) defines the different categories of seats and their costs. Use this seating plan to answer the questions that follow:

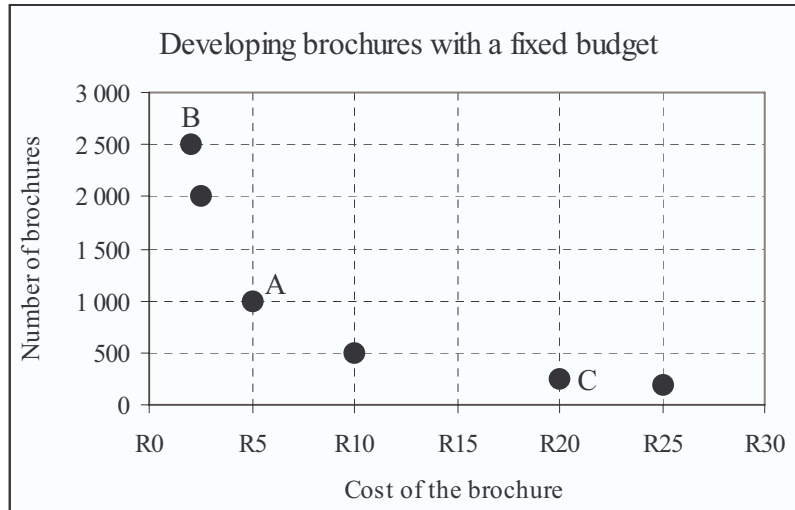


- 5.2.1 How many seats are there in row G? (1)
- 5.2.2 How much does a ticket for each of the following seats cost?
  - (a) B3
  - (b) K3
  - (c) K9
- 5.2.3 Give the seat numbers of the wheel chair seats that cost R45,00 per seat. (3)
- 5.2.4 Why is there no row I? (2)
- 5.2.5 By discussing the view that you would have of the screen from your seat, and comparing the price of the seat with others; discuss whether you think it is correct to treat seat O24 as a category1 (Cat 1) seat. (5)

[27]

**QUESTION 6**

The graph below depicts the summary of Sello’s research into the number of advertising brochures that can be printed with a fixed budget. Answer the questions that follow.



- 6.1 What does point A tell us? (2)
- 6.2 Calculate the budget that Sello has to develop brochures with. (3)
- 6.3 Calculate, the **cost** of the brochures represented by point B. (3)
- 6.4 Calculate, the **number** of brochures represented by point C. (3)
- 6.5 Describe the trend in the graph by completing the sentence: “As the cost of brochures increase, the number of brochures that can be printed ...” (1)

**[12]**

– End of Paper –