



education

Department of
Education
FREE STATE PROVINCE

NOVEMBER EXAMINATION 2022

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GRADE 10

MATHEMATICAL LITERACY

PAPER 2

MARKS: 75

TIME: $1\frac{1}{2}$ HOURS

This question paper consists of 6 pages and 3 ANNEXURES.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the ANNEXURES to answer the following questions
 - ANNEXURE A for QUESTION 2.1
 - ANNEXURE B for QUESTION 2.2
 - ANNEXURE C for QUESTION 3.2
3. Number the questions correctly according to the numbering system used in this question paper.
4. An approved calculator (non-programmable and non-graphical) may be used unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Start EACH question on a NEW page.
9. Write neatly and legibly.

QUESTION 1

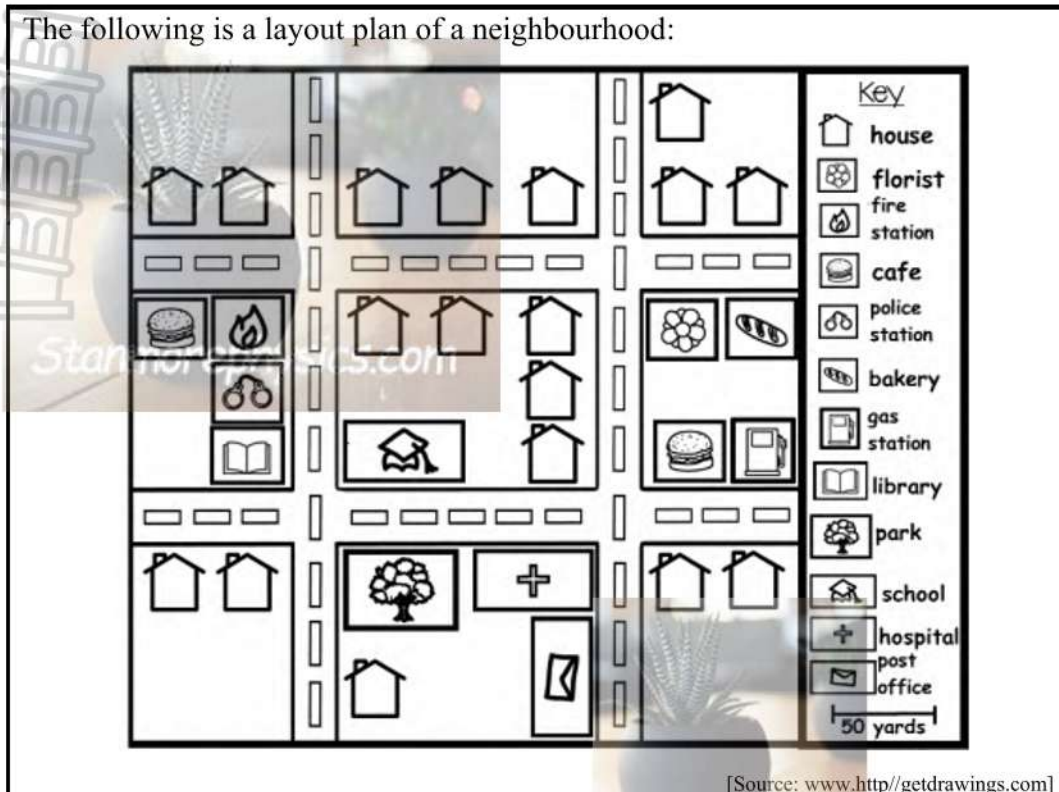
- 1.1 Mr Sethole bought a swimming pool for his children to use during December holidays. The swimming pool has a diameter of 1 830 cm.



Use the information above to answer the questions that follow:

- 1.1.1 Define the term *diameter* according to the given context. (2)
- 1.1.2 Calculate the radius of the swimming pool in metres. (3)
- 1.1.3 To calculate the circumference of the swimming pool, Mr Sethole had to choose from the list of formulae given below. Which formula is the correct one? (2)
- A. Circumference of the circle = $3,142 \times \text{radius}$
- B. Circumference of the circle = $3,142 \times \text{diameter}$
- C. Circumference of the circle = $2 \times 3,142 \times \text{diameter}$
- D. Circumference of the circle = $3,142 \times \text{radius}^2$

1.2 The following is a layout plan of a neighbourhood:



Study the layout plan and answer the following questions.

- 1.2.1 How many houses are there in this neighbourhood? (2)
- 1.2.2 Which building is located directly next to the park? (2)
- 1.2.3 The type of the scale used on the map to determine the actual distance is a bar scale. Measure the length of the scale in centimetres. (2)
- 1.2.4 Determine the probability (as a common fraction) of finding a post office out of all the buildings, except the houses, in this neighbourhood. (2)

[15]

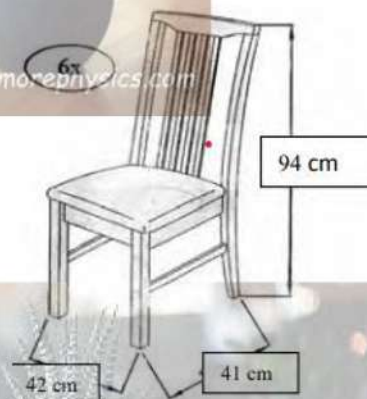
QUESTION 2

- 2.1 Mr Mofokeng's youngest son Thabang and his fiancé are going to get married. They have chosen a hall for their ceremony and decided on how the seating plan should look like for the reception. The seating plan is shown in ANNEXURE A.

Refer to the seating plan in ANNEXURE A and answer the questions below:

- 2.1.1 Determine the number of people that will be accommodated in the hall. (2)
- 2.1.2 Provide one reason why there are no chairs arranged on the shorter side of the table. (2)
- 2.1.3 A person seated at Table 9, on the side of the wall, want to put her gift on the gift table. Describe a possible route this person can take without walking over the dance floor. (2)
- 2.1.4 Tables 1, 2 and 3 are reserved for the bridal couple, parents of the couple, 1 bridesmaid and 1 best man. Guests sit at the rest of the tables. Calculate the probability that, if you are invited as a guest, you will be sitting at a table with an even number. Write your final answer as a percentage. (2)

- 2.2 Mrs Smit bought a set of six chairs that she will use in the hall. She must assemble all the chairs before she can use it. The picture alongside shows an assembled chair.



ANNEXURE B shows the pieces and the desired quantities required to assemble the **six** chairs. It also shows the steps to follow to assemble one chair.

Use ANNEXURE B to answer the questions that follow:

- 2.2.1 Determine the number of JCBC screws required to assemble ONE chair. (3)
- 2.2.2 By referring to the picture of the chair above, determine which part(s) of the chair still needs to be fitted onto the chair in STEP 2. (3)
- 2.2.3 The package of parts comes with a tool that is used to fasten or loosen the screws. Write down the name of this tool. (2)
- 2.2.4 The actual height of the chair as indicated on the diagram is 94 cm. If it is placed in a box that allow 1cm EACH side for packaging, what will the dimensions of the box be? (4)

[20]

QUESTION 3

3.1

FIGURE 1



FIGURE 2



NOTE: 12:59 a.m.

Study the figures above to answer the following questions:

- 3.1.1 Identify the type of clock represented by figure 1 and figure 2. (2)
- 3.1.2 Write the time indicated by the clock in figure 1 in words. (2)
- 3.1.3 What does **a.m.** in figure 2 mean? (2)

3.2

Tshepang Monokwane wants to prepare popsicles for his birthday party. The temperature on the day of his birthday party will be $32\text{ }^{\circ}\text{C}$. The recipe and ingredients that Tshepang will use to make the popsicles are given on ANNEXURE C.

Use ANNEXURE C and the information above to answer the questions that follow:

- 3.2.1 If Tshepang uses the recipe as given in ANNEXURE C, how many popsicles will he make? (2)
- 3.2.2 Tshepang decided to invite 15 friends to his birthday party, how many grams of whole strawberries will he need to make popsicles for himself and his friends? (4)
- 3.2.3 The party starts at 13:00 and Tshepang starts making the popsicles at 07:00 a.m. Tshepang prepare one batch of posicles (as per recipé) at a time but freeze all popsicles at the same time. Will the posicles be ready when the party starts? Verify your answer with calculations. (6)
- 3.2.4 The temperature on the day of the party will be $32\text{ }^{\circ}\text{C}$. What does the symbol $^{\circ}\text{C}$ stands for? (2)

[20]

QUESTION 4

Sam would like to design a vegetable garden. The measurements (dimensions) of Sam's vegetable garden are given below:



Width of the gate = 1 m

Use the information above to answer the questions that follow.

4.1 Define the term *perimeter* according to the given context. (2)

4.2 Calculate the perimeter of the garden. (3)

4.3 Sam would like to put a fence around his vegetable garden. Each panel is 1,5 m wide and can be cut up into smaller pieces. How many panels does he need? Show all your calculations. (4)

4.4 Calculate the area of the garden.

You may use the following formula:

Area of rectangle = length \times width (4)

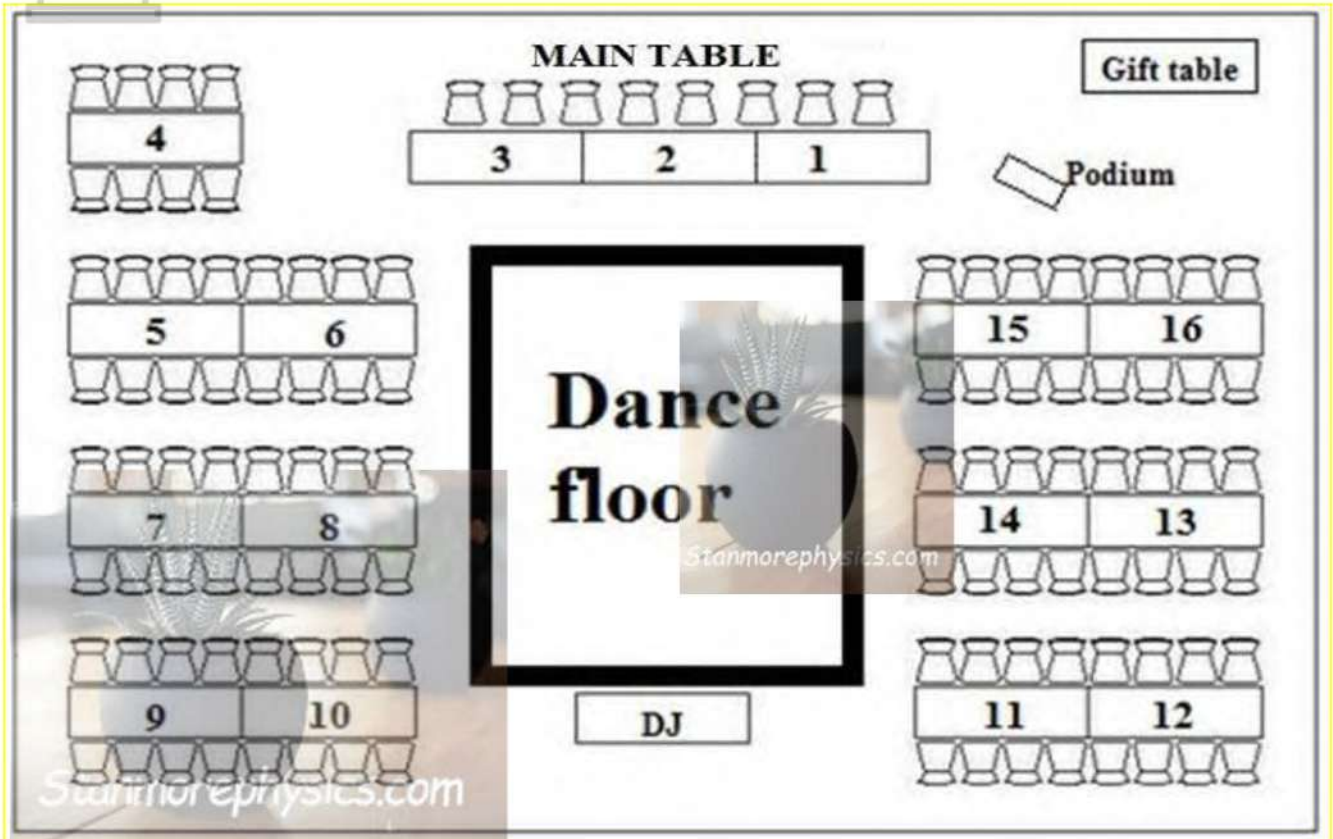
4.5 Sam would like to fertilize the garden before he starts planting. He needs 100 g of fertilizer per m^2 . The bags of fertilizers are sold in 2,5kg bags and one bag cost R48,90.

Show, by means of calculations that he will spend R97,80 to buy the fertilizer. (7)
[20]

ANNEXURE A

Question 2.1

Wedding Seating




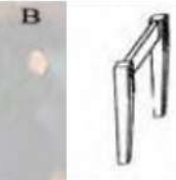
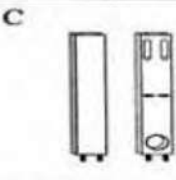

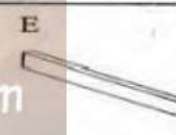

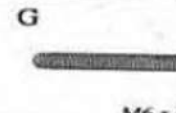


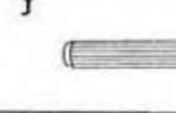

Note: A Podium is a small platform on which a person may stand to be seen by an audience, as when making a speech

ANNEXURE B

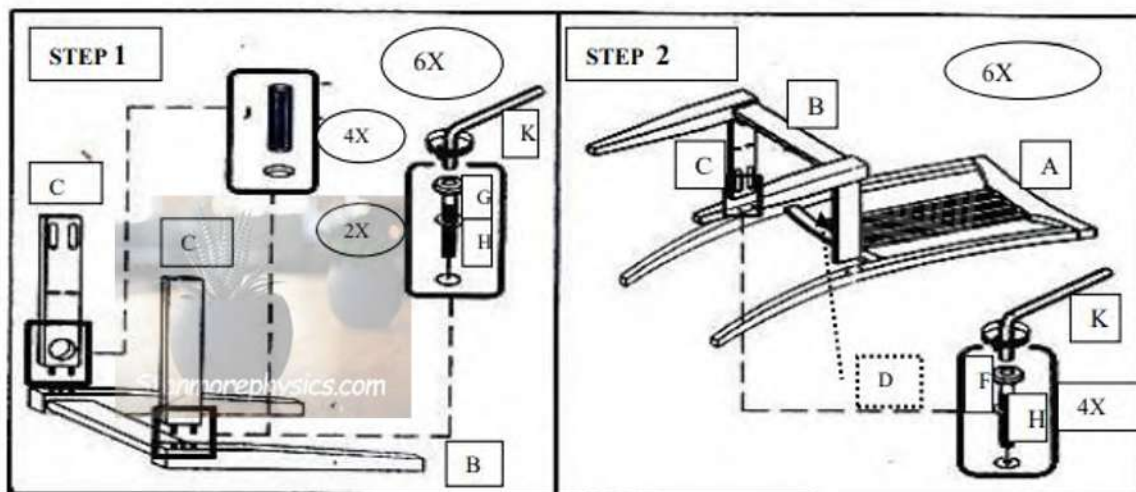
Question 2.2

Parts for Assembling a chair

FOR CHAIR x 6PCS:

					
Chair Back Frame	6PCS	Front Leg Frame	6PCS	Side Rail	12PCS
					
Chair Seat	6PCS	Stretcher	12PCS		
					
M6 x 40mm JCBC Screw	24PCS	M6 x 50mm JCBC Screw	12PCS	Spring Washer	36PCS
					
M4 x 30mm cb Screw	42PCS	Wood Dowel	24PCS	Allen Key	1PC

Steps to follow to assemble the chair



ANNEXURE C

Question 3.2

A Strawberries lemon popsicle recipe

Strawberries lemon popsicles

Ingredients.

3 cups whole strawberries
1 tablespoon fresh lemon juice
1 tablespoon honey
120 ml of tap water

These ingredients serve 8 people.

Preparing time 15 minutes
Freezing time: 5 hours

NOTE: 1 cup = 128 g



A Popsicle is a piece of flavoured ice on a stick, an ice lolly.



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MATHEMATICAL LITERACY P2

MARKING GUIDELINE

NOVEMBER 2022

MARKS: 75

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Symbol/Simbool	Explanation/Verduideliking
M	Method/Metode
M/A	Method with accuracy/Metode van akkuraatheid
CA	Consistent accuracy/Volgehoue akkuraatheid
A	Accuracy/Akkuraatheid
C	Conversion/Herleiding
S	Simplification/Vereenvoudiging
RT	Reading from a table/graph/diagram/Lees vanaf tabel/grafiek/diagram
SF	Correct substitution in a formula/Korrekte vervanging in formule
O	Opinion/Example/Definition/Explanation/Opinie/Voorbeeld/Definisie/Verduideliking
P	Penalty, e.g., for no units, incorrect rounding off, etc./Penalisasie, bv. vir geen eenhede/verkeerde afronding ens.
R	Rounding off/afronding
NPR	No penalty for rounding/Geen penalisering vir afronding nie
NPU	No penalty for the units/Geen penalisering vir eenhede nie
AO	Answer only, if correct, full marks/Slegs antwoord, indien korrek, volpunte
MCA	Method with consistent accuracy/Metode met volgehoue akkuraatheid


This marking guideline consists of 04 pages


Marking Guidelines

QUESTION1 [15 MARKS]		ANSWER ONLY FULL MARKS	
Q	Solution	Explanation	T/L
1.1.1	The line that divides the swimming pool into two equal parts. ✓✓O A straight line passing from side to side through the centre of the swimming pool. ✓✓O	2 A correct explanation (2)	M L1
1.1.2	$\text{Radius} = \frac{1830}{2} \checkmark \text{MA}$ $= 915 \text{ cm}$ $= \frac{915}{100} \checkmark \text{MA}$ $= 9,15 \text{ m} \checkmark \text{A}$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> OR $1830 \div 100 \checkmark \text{M}$ $= 18,3 \text{ m}$ $18,3 \text{ m} \div 2 \checkmark \text{M}$ $= 9,15 \text{ m} \checkmark \text{A}$ </div>	1 MA dividing diameter by 2 1 MA Converting cm to m 1 A Answer (3)	M L1
1.1.3	B Circumference of the circle = 3,142 × diameter ✓✓A	2A correct formula (2)	M L1
1.2.1	18 ✓✓A	2A correct no of houses (2)	MP L1
1.2.2	Hospital ✓✓A	2A correct name of the building (2)	MP L1
1.2.3	1,4 cm ✓✓A <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;">Measure the paper printed at your school</div>	2 A Correct measurement (±1) (2)	MP L1
1.2.4	$\frac{1}{12} \checkmark \text{A} \checkmark \text{A}$	1A numerator 1A denominator (2)	MP L1

QUESTION2 [20 MARKS]			
Q	Solution	Explanation	T/L
2.1.1	112 ÷ DJ = 113 ✓✓A	2 A Correct number of people (2)	MP L1
2.1.2	For easy movement. ✓✓O OR Uncomfortable to sit on the short side. Accept any other logical reason.	2O correct reason (2)	MP L4
2.1.3	Walk pass the dance floor towards table 11 and 12, at the end of table 12 turn left and walk straight until he/she passes the podium, the gift table will be just behind the podium ✓✓A OR Walk until the end of table 10, turn left, walk pass the dance floor, at the end of the dance floor, turn right, walk straight until he/she passes the podium, then turn left, the gift table will be just behind the podium ✓✓A Accept any logical direction	2A correct direction (2)	MP L2
2.1.4	$\frac{7}{13} \times 100$ ✓A = 53,85% ✓CA	1A correct fraction 1CA percentage NPR (2)	MP L2
2.2.1	$(24 \div 6) + (12 \div 6)$ ✓RT ✓M = 4 + 2 = 6 ✓CA	1 RT no of screws 1 M division by 2 and adding 1 CA number of screws (3)	MP L2
2.2.2	Chair seat ✓A and stretcher ✓A	2A chair seat 1A stretcher (3)	MP L2
2.2.3	Allen key ✓✓A	2 A correct explanation (2)	MP L1
2.2.4	94 + 2 = 96 cm ✓A 42 + 2 = 44 cm ✓M 41 + 2 = 43 cm ✓M Dimension = 96 × 44 × 43 = 181 632 ✓MCA	1MA adding 2 1M answer 1M answer 1MCA dimension (4)	MP L2

QUESTION 3 [20 marks]

Q	Solution	Explanation	T/L
3.1.1	Figure 1: Analogue ✓ A Figure 2: Digital ✓ A	1 A analogue 1 A digital (2)	M L1
3.1.2	Ten minutes past ten ✓✓ A	2 A correct time (2)	M L2
3.1.3	Morning ✓✓ A	2 A correct answer (2)	M L1
3.2.1	8 popsicles/8 ✓✓ A	2 A correct answer (2)	M L1
3.2.2	16 popsicles ✓ A ✓M $\frac{16}{8} = 2$ 2 servings $\times 3 = 6$ ✓M $6 \times 128\text{g} = 768\text{g}$ ✓CA OR ✓M $\frac{16}{8} = 2$ ✓M $2 \times 384\text{g} = 768\text{g}$ ✓CA	1 A 16 Popsicle 1 M numerator & denominator 1 M $\times 3$ 1 CA  1 M numerator & denominator 1 M $\times 384\text{g}$ 1 CA answer (4)	M L3
3.2.3	Duration for making popsicles ✓M 15 minutes $\times 2 = 30$ minutes 30 minutes + 5 hours ✓M 5 hours 30 minutes ✓CA Option 1 ✓M $13:00 - 07:00 = 6$ hours ✓A Tshepang has enough time to make popsicles ✓O Option 2 ✓M $07:00 + 05:30 = 12:30$ ✓A Popsicles will be ready 30 minutes before the party starts. ✓O	1 M 15 minutes $\times 2$ 1 M adding 1 CA answer 1 M subtracting 1 A answer 1 O reason OR 1M adding 1 A answer 1 O reason (6)	M L2
3.2.4	Degree Celsius ✓✓ A	2A correct definition (2)	M L2

QUESTION 4 [20 MARKS]			
Q	Solution	Explanation	T&L
4.1	Perimeter is the total distance around the vegetable garden ✓✓A	2A correct definition	M L2
4.2	$8,5 \text{ m} + 2 \text{ m} + 5,5 \text{ m} + 6 \text{ m} + (5,5 + 2) \text{ m} + 2,5 \text{ m}$ $= 8,5 \text{ m} + 2 \text{ m} + 5,5 \text{ m} + 7,5 \text{ m} + 2,5 \text{ m} \checkmark \text{M}$ $= 32 \text{ m} \checkmark \text{CA}$	1A calculating 2,5 m 1M adding all values 1CA perimeter (3)	M L2
4.3	$32 \text{ m} - 1 \text{ m} = 31 \text{ m} \checkmark \text{A}$ $31 \text{ m} \div 1,5 \text{ m} = 21 \text{ panels} \checkmark \text{CA}$	CA from question 4.2 1MA subtracting 1 metre 1A length 1MA dividing with 1,5 1CA simplification (4)	M L2
4.4	Total area $(8,5 \times 2) + (5,5 \times 6) \checkmark \text{SF}$ $= 17 + 33 \checkmark \text{M}$ $= 50 \text{ m}^2 \checkmark \text{CA}$	 1SF substitute into formula 1SF substitute into formula 1M adding area 1CA simplification (4)	M L2
4.5	$100 \text{ g} = 1 \text{ m}^2$ $\dots = 50 \text{ m}^2$ $50 \text{ m}^2 \times 100 \text{ g} = 5\,000 \text{ g} \checkmark \text{A}$ $5\,000 \text{ g} \div 1\,000 \checkmark \text{MCA}$ $= 5 \text{ kg} \checkmark \text{CA}$ $5 \text{ kg} \div 2,5 = 2 \text{ bags} \checkmark \text{MCA}$ $2 \times \text{R}48,90 \checkmark \text{MCA}$ $= \text{R}97,80 \checkmark \text{CA}$	1MA multiplying by 100 1A correct answer 1 MCA ($\div 1\,000$) 1CA simplification 1MCA calculating number of bags 1MCA multiplying with R48,90 1CA correct answer (7)	M L4