KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

PREPARATORY EXAMINATION

SEPTEMBER 2022

MARKS: 150

TIME: 3 hours

This question paper consists of 12 pages and an Addendum with 2 Annexures.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.

2. Use the ANNEXURES in the ADDENDUM to answer the following questions.

   - ANNEXURE A for QUESTION 2
   - ANNEXURE B for QUESTION 5

3. Number the answers correctly according to the numbering system used in this question paper.

4. Start EACH question on a NEW page.

5. You may use an approved calculator (non-programmable and non-graphical), 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. Diagrams are NOT necessarily drawn to scale, unless state otherwise.

10. Write neatly and legibly.

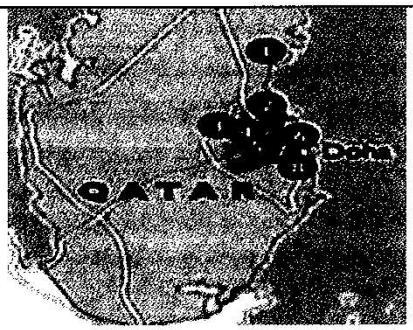
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QUESTION 1

1.1 The 2022 FIFA Soccer World Cup is being hosted in Qatar. TABLE 1 below shows the map and the capacity of the eight stadiums where the matches will be played. The stadiums are all within 40 miles of each other.

TABLE 1: LAYOUT MAP AND CAPACITY OF THE STADIUMS

	STADIUM	CAPACITY
1	Al Bayt	60 000
2	Lusail	86 250
3	Al Rayyan	40 000
4	Qatar Foundation	45 350
5	Khalifa International	48 000
6	Ras Abu Aboud	40 000
7	Al Thumana	40 000
8	Al Wakrah	40 000



Scale 1:6 436 000

[Source www: thetimes.co.uk]

Use the information and TABLE 1 above to answer the following questions.

1.1.1 Name the stadium with the 3rd largest seating capacity. (2)

1.1.2 Determine the total capacity of all the stadiums. (2)

1.1.3 Identify the type of scale shown on the map. (2)

1.1.4 Write the number 6 436 000 in words. (2)

1.1.5 The stadiums are approximately 40 miles from each other. Determine the approximate distance between the stadiums in km, if 1 mile = 1,609 km. (2)

The opening match for the FIFA Soccer World Cup will be held on 21 November 2022 at 13:00 in Doha.

Use the information above to answer the following questions.

1.2.1 Determine the total number of days to the match starting from 27 September 2022. (2)

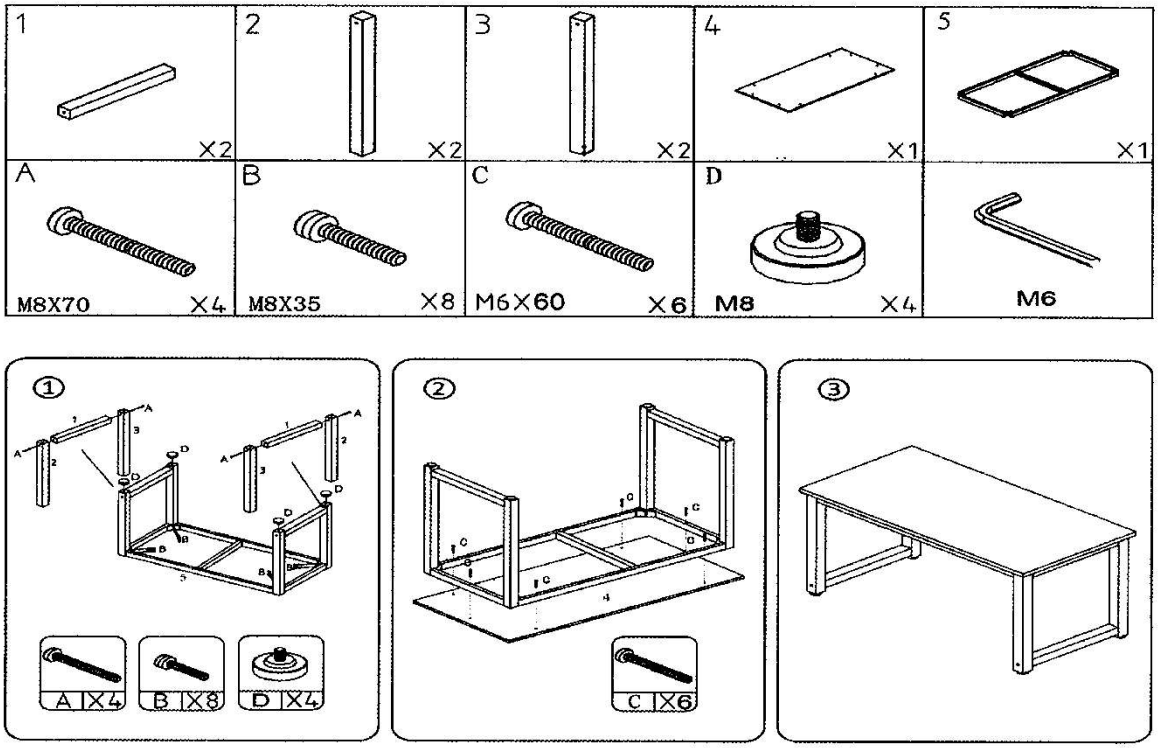
1.2.2 Determine if the starting time of the match is shown in 12 or 24-hour time format. (2)

1.2.3 Write the start time of 13:00 in 12-hour format. (2)

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1.3

The diagram below shows the assembly of a piece of furniture and the number of itemsrequired for assembly.



[Source www.ubuy.com]

Use the diagram above to answer the question that follow.

1.3.1 Identify the piece of furniture being assembled. (2)

1.3.2 Write down the number of legs this piece of furniture has. (2)

1.3.3 Write down the label of the item used to tighten the screws of this piece of furniture. (2)

1.3.4 Determine the total number of parts that make up the piece of furniture. (2)

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1.4

The image below shows a pack of four Koo Baked Beans that is on special at a supermarket.

4 pack for R52,99	Dimensions of the can
	 Height = 11cm Radius = 3,5 cm

[Source: www.checkers.co.za]

Use the images and information above to answer the questions that follow.

1.4.1 Calculate the unit cost of one can of Koo Baked Beans in the pack. (2)

1.4.2 Determine the mass in kilograms of one can of Koo Baked Beans. (2)

1.4.3 Determine the diameter of a can. (2)

[30]

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QUESTION 2

2.1 Shown in ANNEXURE A is the floorplan of a house with 3 bedrooms and 2 bathrooms.

Use the floorplan in ANNEXURE A to answer the following questions.

2.1.1 Determine how windows and doors can be seen on this floor plan. (2)

2.1.2 In which general direction does the living room window face? (2)

2.1.3 Determine which bedroom will get the morning sun. (2)

2.1.4 Identify one design error on this floorplan. (2)

2.1.5 Name the type of plan that will show the side views of the house. (2)

2.1.6 Name ONE difference between the floorplan in ANNEXURE A and the type of plan in question **2.1.5** above. (2)

2.2 The scale on the floorplan is 1 :100. The dimensions of the house are given in metres.

2.2.1 Explain the meaning of the scale 1:100 in words. (2)

2.2.2 Use the scale of 1:100 to determine the drawing size of the length of the machine room. (3)

2.2.3 A statement was made that the scale given above is not very accurate if the floorplan is resized.

Is this statement correct? Give a reason for your answer. (3)

[20]

QUESTION 3

3.1 Pearl wants to install four Jojo tanks on her property to grow vegetables. The diameter of one Jojo tank is 1 820 mm.

AN IMAGE SHOWING FOUR JOJO TANKS



NOTE: 1 000 cm^3 = 1 litre

[Source: www.jojo.co.za]

Use the information above to answer the following questions.

3.1.1 Calculate the height of ONE Jojo tank in cm if it has the capacity of 5 250 litres.

You may use the formula:

Volume of a Cylinder = 3,142 × radius^2 × height (7)

3.1.2 Pearl states that a Jojo tank should hold 5 000 litres of water if its filled to 80% capacity.

Verify, using a calculation, if this statement is CORRECT. (4)

3.1.3 Calculate the total number of kilolitres the four Jojo tanks can hold if they are filled to capacity.

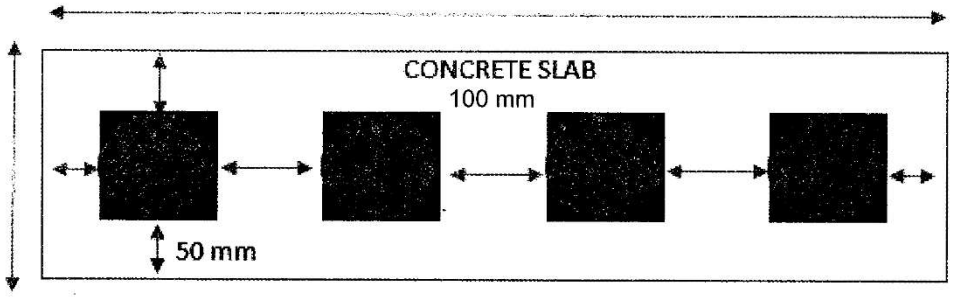
NOTE: 1000 litres = 1 kilolitre (4)

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3.2

The four Jojo tanks are mounted on a concrete slab. The diameter of each Jojo tank is 1 820 mm. The concrete slab has a 50 mm allowance along the width and the length of the slab.

Top view of the four JOJO tanks mounted on a concrete base



NOTE: 1 m = 1 000 mm

Use the information in the diagram above to answer the following questions.

3.2.1 Determine the length of the concrete slab in metres. (8)

3.2.2 Hence, determine the width of the concrete slab in metres. (4)

3.2.3 Calculate the volume of the concrete slab in cubic metres, if the height of the concrete slab is 85 mm.

You may use the formula:

Volume = length × breadth × height (4)

3.2.4 To mix 1 cubic metre of medium strength concrete you will need:

- 7 bags of cement
- 0,70 cubic metres of sand
- 0,70 cubic metres of stone

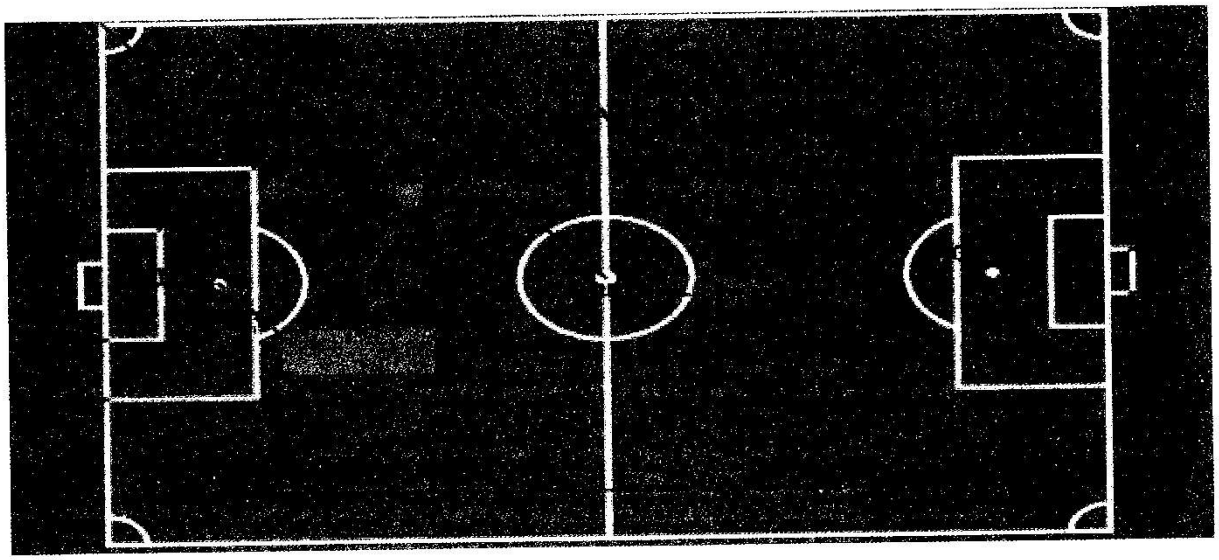
Determine the quantity of cement, sand and stone required for the concrete slab the Jojo tanks sits on. (4)

[35]

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QUESTION 4

4.1 According to FIFA, a soccer field must be 105 metres in length and 68 metres wide. The radius of the centre circle is 9,15 metres. The marking lines on the soccer field need to be remarked. The diagram of the soccer field is shown below.



NOTE: The total length of the 4 corner flags quarter circles and 2 penalty arcs are 22. 25 metres. The width of the goal box is 5,5 m.

[Adapted source: www.vectorstock.com]

Use information above to answer the following questions.

4.1.1 Determine the sum of the perimeter of the field and the halfway line.

You may use the formula:
Perimeter of a rectangle = 2(Length) + 2(Width) (3)

4.1.2 Hence, calculate the total length of all the white lines required to mark the soccer field.

You may use the formula:

Circumference of a circle = $2\pi r$ where $\pi = 3,142$ (6)

4.1.3 The width of white line marking the field is 12 cm. Determine the area of the white marking lines.

You may use the formula:

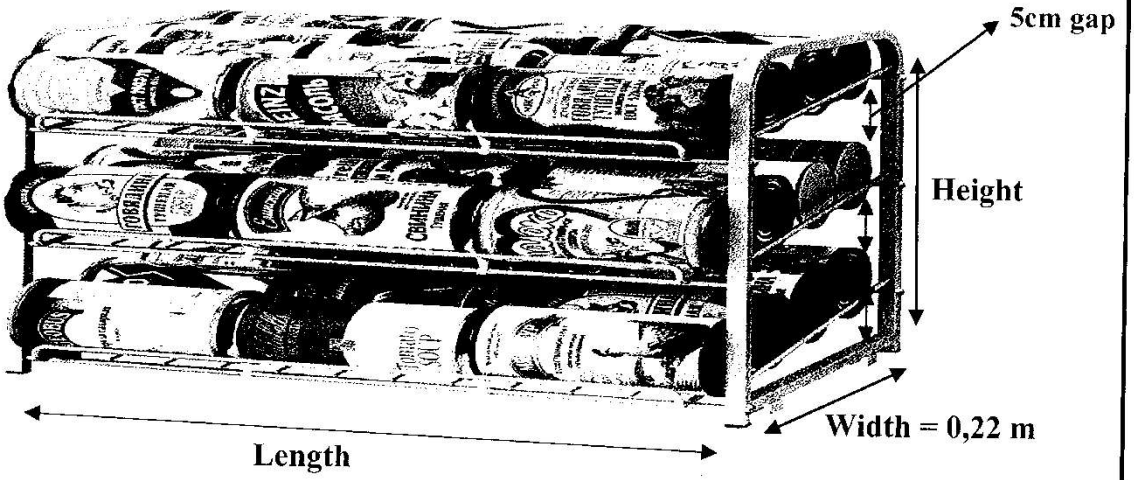
Area of a rectangle = Length × Width (4)

4.1.4 Calculate the total cost of white marking paint, if 1 litre of paint covers 6 m^2 and a 5 litre tin of paint costs R328,49. (6)

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4.2

Tin cans are stored in the storage rack as seen in the diagram below. The height of each can is 14 cm. There is a 5 cm gap between the can and the height of the shelf.



[Source: www.shopping24.com]

Use the information above to answer the following questions.

4.2.1 Four cans are packed along the width of the rack. Determine the radius of a can in cm. (6)

4.2.2 Determine the height of this rack in metres, excluding the height of the legs if there is a gap of 5 centimetres between the can and the shelf. (4)

4.2.3 Determine the total number of cans that this rack can hold, showing all calculations. (3)

[32]

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QUESTION 5

5.1 The map of Qatar and surrounding countries is shown in ANNEXURE B.

Use the information in ANNEXURE B to answer the following questions.

5.1.1 Name the capital of Bahrain as shown on the map. (2)

5.1.2 Which area lies south west of Doha? (2)

5.1.3 Identify the type of scale on this map. (2)

5.1.4 Convert this scale to a number scale. Write it in the form **1: .....** (5)

5.1.5 A tour guide stated that Al Khawr is 45 km away from Doha. Verify, showing all calculations, if this statement is TRUE. (5)

5.2 The Qatari Riyal is the currency of Qatar. The cost of a taxi in Doha is as follows:

Taxi Start (Normal Tariff)	10.00 QR
Taxi 1km or part thereof (Normal Tariff)	2.50 QR

Source: [www.numbeo.com]

Use the information above to answer the following questions.

5.2.1 Determine the cost of hiring a taxi to Al Khawr from Doha. (3)

5.2.2 The taxi driver thinks he can make this trip in an hour if he travels at 80km/hour. Verify this claim, showing all calculations.

You may use the formula: **Distance = speed × time.** (3)

5.2.3 The taxi has a fuel capacity of 55 litres and a fuel consumption of 8 litres per 100 km.

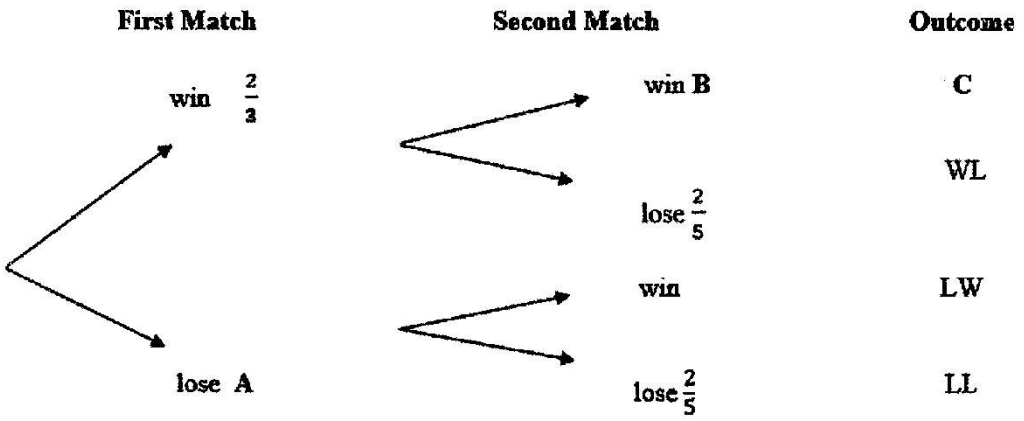
The taxi driver states that he can make 6 return trips without refuelling.

Verify, using calculations, if this statement is CORRECT. (5)

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5.3

The probability of a soccer team winning or losing 2 matches is shown in the tree diagram below.



Use the information above to answer the following questions.

5.3.1 Fill in the missing values **A, B** and **C**. (3)

5.3.2 Determine the probability of winning two matches.
Write your answer as a percentage. (3)

[33]

TOTAL MARKS: 150

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