LRN International GCSE: Mathematics (7131)

Candidate Name	
Candidate Number	
Centre Name	
Centre Number	

Paper 1 Mathematics

Model Paper

(2 hours)

It is necessary to respond on the answer sheets provided alongside this question paper. Additionally, you must have a soft pencil (preferably of type B or HB), a clean eraser, and a dark blue or black pen.

INSTRUCTIONS:

- You must write your name, candidate number, centre name, and centre number on the answer sheets in the designated spaces.
- Attempt all the questions from the subjective section using a dark blue or black pen.
- It is important to follow the instructions provided on the answer sheets.
- Do not use correction fluid.
- Avoid writing on any bar codes.
- You are allowed to use a calculator if needed.

INFORMATION:

- This paper has a total of 100 marks.
- The number of marks assigned for every question or its parts is indicated within brackets ( ).
- Rough work must be completed on this question paper.

Q. No. 1: Solve the following questions. **[10]**

(i) a) + 7 + (- 11) + 5 [2]

b) - 8 + 10 - (- 17) + 10 [2]

(ii) k = - 3, m = 1, n = - 4

a) $\frac{k + m + n}{k^2 + m^2 + n^2}$ [2]

b) $k^2m^2(m - n)$ [2]

c) $m\sqrt{k - n}$ [2]

Q. No. 2: Evaluate the following equations. **[15]**

(i) a) (x + 1) (x + 4) = (x - 7) (x + 6) [3]

b) $\frac{2x+1}{8} - \frac{x-1}{3} = \frac{5}{24}$ [3]

c) Two numbers are in the ratio 1:11 and their sum is 15.

Find the numbers. [3]

(iii) Use the substitution method to solve the following:

a) 2w + 3x – 13 = 0 [3]

X + 5w -13 = 0

b) ax - ay - bs + by [3]

Q. No. 3: Answer the following questions. **[10]**

(i) a) Is 458 a term in the sequence 5, 12, 26,…….? [2]

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b) Solve the following, giving your answer, correct to two decimal places:

$2x^2 - 3x - 1 = 0$ [3]

(iii) Find the equation of the line that has a gradient of the following. [5]

a) 3 and goes through (1,1).

b) 7 and goes through (2,5).

c) 2 and goes through (10,1).

d) $\frac{1}{2}$ and goes through (2,2).

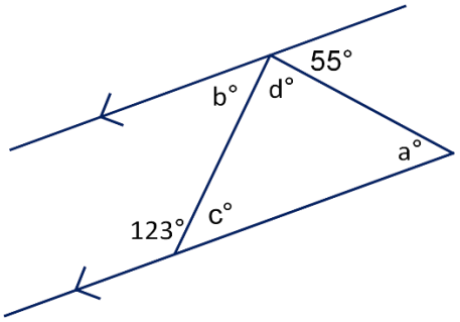
e) $-\frac{1}{2}$ and goes through (2,2).

Q. No. 4: Calculate the following statements. **[14]**

(i) a) Calculate the number of sides of a regular polygon whose interior angles are each 156°. [3]

b) Calculate the number of sides of a regular polygon whose interior angles are each 150°. [3]

(ii) Find Angles? [8]



Q. No. 5: Solve the following questions. **[10]**

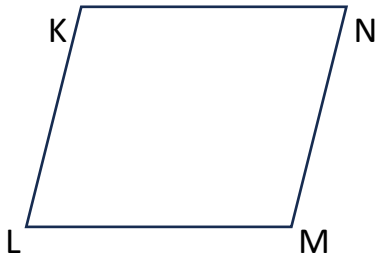
(i) The sides of the triangle are 7cm, 9.4cm, and 12.2cm. [4]

The sides of the triangle are 7.2cm, 9.6cm, and 12cm.

The sides of the triangle are 7.4cm, 9cm, and 12.4.

Which of the three triangles are right-angled triangles? Explain your answer.

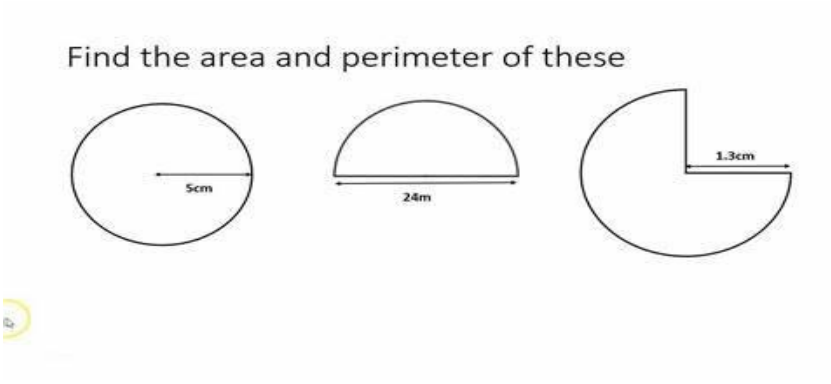
(ii) KLMN is a rhombus. Its perimeter is 52cm. The diagonal is 24cm long. Find the area of KLMN. [3]



(iii) Find the area of the regular pentagon of side 8cm. [3]

Q. No. 6: Solve the following questions. **[15]**

(i) [6]



(ii) Lakmini decided to measure the circumference of the earth using a very long tape measure. She held the tape measure 1m from the surface of the (perfectly spherical) earth round. When she had finished her friend said that her measurement gave too large an answer and suggested taking off 6m. Was her friend correct?

[Take the radius of the earth to be 6400km, if you need it]. [3]

(iii) A solid cylinder of radius 4cm and length 8cm is melted down and recast into a solid cube. Find the side of the cube. [3]

(iv) A toy consists of a cylinder of diameter 6cm sandwiched between a hemisphere and a cone of the same diameter. If the cone is of height 8 and the cylinder is of height 10cm, find the total volume of the toy. [3]

Q. No. 7: Evaluate the following statements. **[14]**

(i) Two dice and two coins are thrown at the same time.

Find the probability of obtaining.

a) Two heads and a total of 12 on the dice.

b) A head, a tail, and a total of 9 on the dice.

c) Two tails and a total of 3 on the dice.

What is the most likely outcome? [4]

(ii) A bag contains 5 red balls and 3 green balls. A ball is drawn and then replaced before a ball is drawn and then replaced before a ball is drawn again. Draw a tree diagram to show all the possible outcomes. Find the probability that:

a) Two green balls are drawn.

b) The first ball is red and the second is green. [4]

(iii) The table shows the age, height, and weight of seven children. [6]

	Mike	Steve	Dora	Sam	Pat	Rayan	Gray
Age(years)	16	15	17	15	16	15	16
Height(cm)	169	180	170	172	175	163	164
Weight (kg)	50	50	52	44	51	41	48

a) What was the median age?

b) What was the median height?

c) What was the median weight?

Q. No. 8: Calculate the following statements. **[12]**

(i) The table shows the result of a survey on the number of occupants per car.

Number of occupants	1	2	3	4
Number of cars	4	11	7	x

a) If the mean number of occupants is $2\frac{1}{3}$ find x.

b) If the mode is 2, find the largest possible value of x.

c) If the median is 2, find the largest possible value of x. [6]

(ii) Bags contain 3 red balls and 3 blue balls. The bag contains 1 red ball and 3 blue balls. A ball is taken at random from a bag and placed in a bag. A ball is then chosen from a bag.

What is the probability that the ball taken from is red? [3]

(iii) Difference between a Population and a Sample? [3]

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