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**Gampaha Education Zone**

දෙවන වාර ඇගයීම - 2025  
**Second Term Evaluation - 2025**

ශ්‍රේණිය } Grade }	11	විෂයය } Subject }	Mathematics II	කාලය } Time }	3 hrs 10min
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Name : ..... Index No. ....

PART A

01. An incomplete table prepared to draw the graph of the function  $y = 3 - (x + 1)^2$  is given below

x	-4	-3	-2	-1	0	1	2
y	-6	-1	-2	.....	2	-1	-6

- (i) Fill in the blank in the table.
- (ii) Using the scale of 10 small divisions as one unit along the x axis and y axis, draw graph of the above function  
Using the graph,
- (iii) Find the interval of x of which the function is positive and decreasing
- (iv) Find the roots of  $x^2 + 2x - 2 = 0$  using the graph
- (v) Find to the 1<sup>st</sup> decimal place of  $\sqrt{3}$  using the positive root of the equation

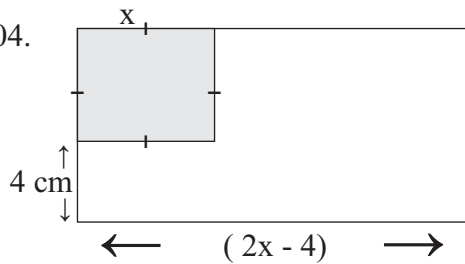
02. A refrigerator worth Rs 100 000 can be bought by making a down payment of 10% of its value and paying the rest in 20 equal monthly installment at an annual interest rate of 18% and the interest is calculated on the reducing balance, Find the amount of a monthly installment.

03. The amount of sugar and dhal bought by two customers A and B are given below.

	sugar	dhal
A	2 Kg	500 g
B	250 g	2 Kg

The cost of the bills of A and B are Rs. 510 and Rs. 490 respectively. Taking the price of 1Kg of sugar as x and 1Kg of dhal as y, build up 2 simultaneous equations and solving them, find the price of 1Kg of sugar and 1Kg of dhal

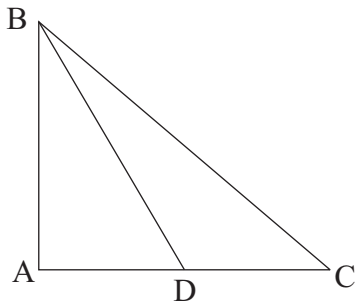
04.



A square shaped part of length  $x$  is removed from the rectangular metal sheet as shown in the figure

- Write a quadratic expression for the area of the rectangle in terms of  $x$
- If the area of the rectangular metal sheet with the square is  $78\text{cm}^2$ , show that quadratic equation,  $x^2 + 2x - 47 = 0$  can be obtained.
- By solving quadratic equation, show that  $x = 4\sqrt{3} - 1$
- Find the side length of the square taking  $\sqrt{3} = 1.73$

05.



$AB$  is a vertical post on a horizontal ground. The length of a wire tied from  $B$  to the point  $C$  on the ground is  $30\text{m}$ . An angle of elevation of  $B$  from the point  $C$  is  $50^\circ$ . Another wire of length  $25\text{ m}$  is tied to the point  $B$  and point  $D$  which is in between  $A$  &  $C$

- Copy the figure on to your answer script and mark the given measurements.
- Draw the scale diagram of above sketch taking the scale  $1:500$
- Find the actual height of  $AB$  post to the nearest meter
- Write the value of  $\angle ABD$

06. The time allocated to watch the television by 45 students in grade 11 of a certain school in a week is represented by the frequency distribution given below.

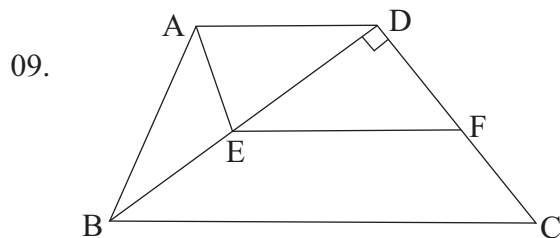
class interval (No. of hours)	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45
frequency (f) (No. of students)	5	10	13	8	4	3	2

- Write the modal class of this distribution
- Taking the mid value of the modal class as the assumed mean or by any other method find the mean time of watching television to the nearest whole number. and show that it is equal to one day
- Taking 4 weeks per a month, show that a child wastes more than  $1\frac{1}{2}$  months for watching television per year

## PART B

07. A contestant in a 'Knowledge test' programme conducted by a certain television channel qualifies for the 2nd round by answering 18 questions correctly. In giving the correct answers, the 18 questions will be given marks such as 50 marks for the 1st question, 75 marks for the 2nd question and 100 marks for the 3rd question etc
- Show that the order of giving marks lies in an arithmetic progression
  - Find the marks that will be given for the 9th question
  - Find the total marks received by a contestant who is answered first 13 questions correctly
  - If a contestant gives a wrong answer to a question, he will have to leave the competition and then he will get only half of the marks that he obtained. If a contestant was able to get 1900 marks by failing to answer a question, Find the number of questions that he answered correctly.

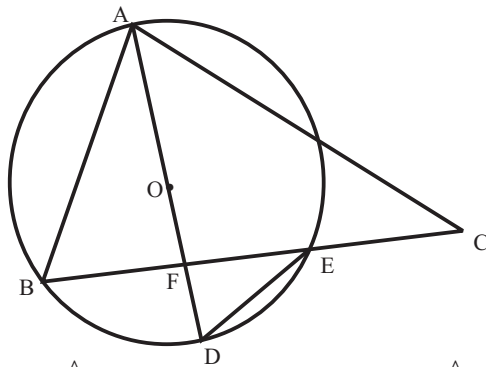
08. Do the construction given below using a straight edge with a cm/mm scale and a pair of compasses. Show the construction lines clearly.
- Construct the triangle ABC such that  $AB = 4.5\text{cm}$ ,  $BC = 4.5\text{cm}$ ,  $\angle ABC = 120^\circ$
  - Draw a line parallel to AB through C and construct the parallelogram ABCD, by marking the point D
  - Construct a perpendicular from C to produced AB and name the foot of it as E
  - Construct a bisector of the angle between produced AD and DC and name the point which it meets produced BC as F
  - Give reasons for the quadrilateral ACFD to be a parallelogram



ABCD is a trapezium with  $AD \parallel BC$  and AEFD is a parallelogram F is the midpoint of CD and  $EF \parallel BC$

- Copy the figure in your answer script and indicate the given information
- If  $DF = 3\text{cm}$ ,  $AD = 5\text{cm}$  Find the length of BC
- Find the perimeter of the trapezium BCFE
- Show that  $\triangle ABE \cong \triangle DEF$  and name a side equal to the side EF

10.



A, B, C, D, E points are on the circle centre O  
A, B, C, D and E are the points on the circle. F is the mid point of BE

- (i) If  $\angle BAD = 30^\circ$ , Find the value of  $\angle EDF$
- (ii) Find the value of  $\angle AOE$
- (iii) If  $\angle ACF = 40^\circ$ , Find the value of  $\angle EAC$
- (iv) Show that  $AB \cdot DF = DE \cdot BF$

11. a) If a hemispherical solid object of radius  $2r$  is made by melting a metal cuboidal solid of length 15m, breadth 8m and height  $\frac{h}{3}$  m, show that  $r = \sqrt[3]{\frac{15h}{2\pi}}$

b) Find the value of  $\frac{\sqrt{0.0873 \times 54.3}}{11.34}$  using the logarithmic tables.

12. The information of 100 patients who came a medical clinic for the treatments is given below.

- 60 patients treated for diabetes
- 25 patients treated for high blood pressure
- 30 patients treated for other illnesses

- (i) Represent this information in a venn diagram
- (ii) Find the number of patients who treated for both of the above diseases?
- (iii) How many patients received treatment for only one disease?
- (iv) Find the percentage of patients who received treatment for other illnesses
- (v) After six months it is revealed that all the patients having high blood pressure have diabetes too. Considering these changed data, draw a new venn diagram and mark the data