Provincial Department of Education
Northern Province
Second Term Examination - 2018
Mathematics

Grade - 10 | **32 T I** | **Time:- 2.00 hours**

Index No :.....

Supervisor Signature : .....

Instructions

- Write your index number correctly.
- To use the under space Part IA, IB questions get answer method.
- Answer the all questions must be done part I A & I B.
- Not allowed to get out the answer sheet from the exam hall after the examination.

Important

- Part IA has 25 questions each has 2 marks totally 50 marks given.
- Part I B has 5 questions each has 10 marks totally
- 50 marks

Marking examiner

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Cross examiner

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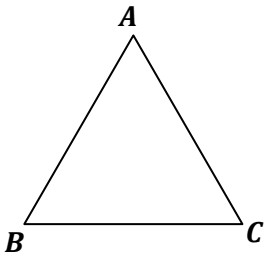
Examiner use only

Part	Question	Marks
I A	1 - 25	
I B	1	
	2	
	3	
	4	
	5	
Total		

Part - I A

Answer all questions

01) Simplify : $\frac{1}{5} + \frac{3}{5}$

02) 

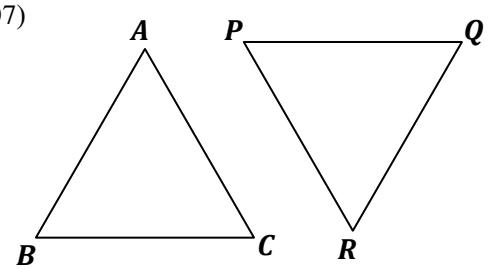
In the $\Delta\, ABC$ $AB = AC$, $BC = 8\ cm$ and its perimeter is $30\ cm$. Find the length of AB.

03) Find the amount of 15% of Rs. 1800.

04) Write $2 = \log_8 64$ as index form.

05) Simplify : $\frac{2}{3x} - \frac{1}{6x}$

06) 6 men take 5 days to complete a certain task. How many men are required to complete the same task in 2 days.

07) 

In these two triangles $AB = PQ$ and $A\hat{B}C = P\hat{Q}R$ If these triangles are congruent of which condition AAS, write down the remaining pairs of corresponding elements which are equal to each other.

08) Find the L. C. M. of $6x^2y$ and $8y$

09) Which two consecutive whole number are closer to $\sqrt{72}$

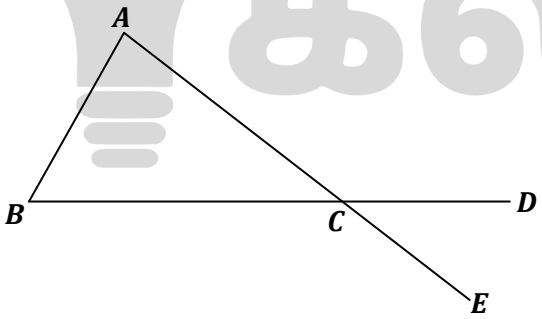
10) If two coordinates of a straight line are $(6\ ,\ 2)$ and $(4\ ,\ 3)$ find the gradient of the straight line.

11) A and B are two sets where $n(A) - n(A \cap B) = 11$ and $n(A \cup B) = 29$ Find the value of $n(B)$?

12) Factorize $ax - by - bx + ay$

13) If $a^2 = xy$, $a = 6$ and $x = (-4)$, find the value of y.

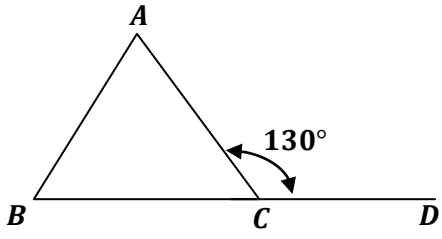
14)



In the given figure $A\hat{B}C = 68°$ and $D\hat{C}E = 32°$, Find the magnitude of $\hat{AC}$.

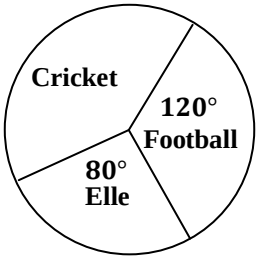
15) Solve : $2x^2 = 6x$

16)

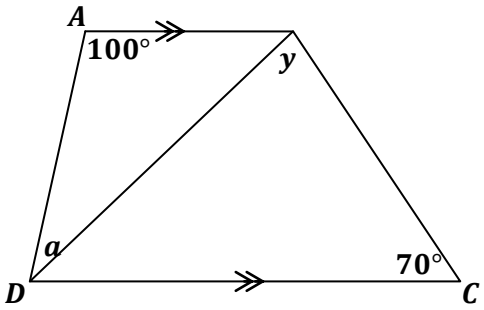


In the given figure $AB = AC$, Find the value of $B\hat{AC}$.

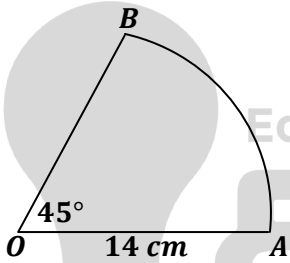
17) The following pie chart shows the information gathered from Grade 10 students regarding the out door games they like the most



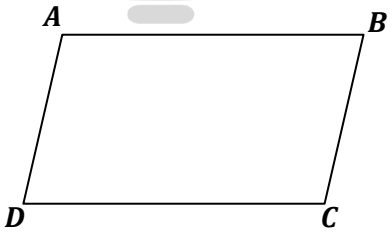
Express the number of students who like cricket as a fraction of total number of students.

18) 

According to the given information, Find the value of $(y - a)$ where $AB//CD$.

19) 

Find the area of given sector OAB.

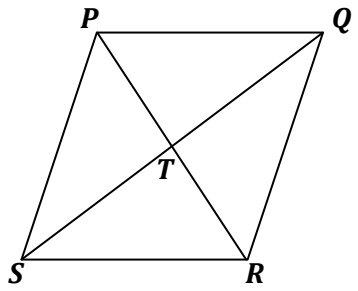
20) 

In the given figure, $ABCD$ is a parallelogram $AB = 12\ cm$ and the perimeter of parallelogram $ABCD$ is $40\ cm$, Calculate the length of AD.

21) Find the distance that a vehicle which travels at a uniform speed of $50\ km/h$, covers during $2\frac{1}{2}$ hours?

22) 

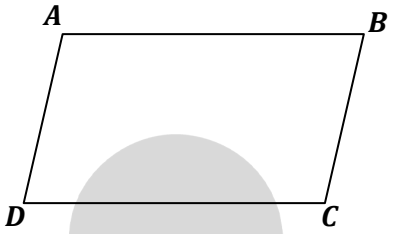
In the rectangle D , $AB = 12\ cm$ and $AD = 5\ cm$, Find the length of AC.

23) 

In the rhombus $PQRS$, PR and QS are meet at T and $P\hat{Q}T = 40°$

(i) Find the value of $P\hat{T}Q$

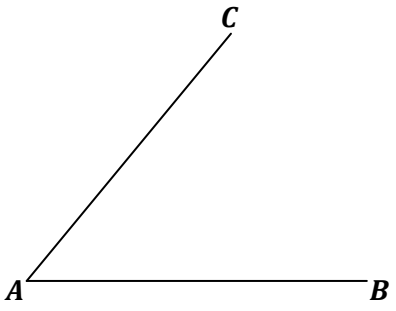
(ii) Find the value of $S\hat{P}Q$

24) 

In the given parallelogram $ABCD$ $D\hat{A}B = 130°$ and $AB = 12\ cm$,

(i) Find $A\hat{B}C$

(ii) Find the length of $DC + AB$.

25) 

Construct the locus of a point moving equidistance from the lines AB and AC.

Part - I B

Answer all questions

01) From a certain school where the students learnt from Grade 6 to 11 is given below. $\frac{1}{5}$ was Grade 6 and 7 students, $\frac{3}{10}$ of remaining students was Grade 8 and 9, and the rest was Grade 10 and 11.

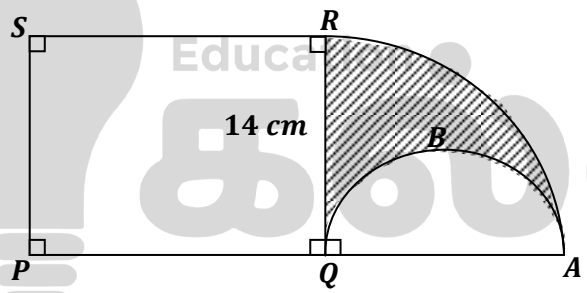
(i) What fraction of total students was Grade 8 and 9?

(ii) What fraction of total students was Grade 10 and 11?

(iii) If the students who learnt in Grade 10, 11 was 140, find the total number of students?

(iv) If the ratio between Grade 10 students and Grade 11 students is $3 : 2$, calculate the number of students who learnt in Grade 11?

02) In the figure contains a rectangle $PQRS$, a quarter circular and a semicircular sector



(i) Calculate the area of shaded region.

(ii) If the area of $PQBARSP$ is 7 times the area of shaded region,

(i) Find the length of PQ.

(ii) Find the perimeter of $PQBARSP$.

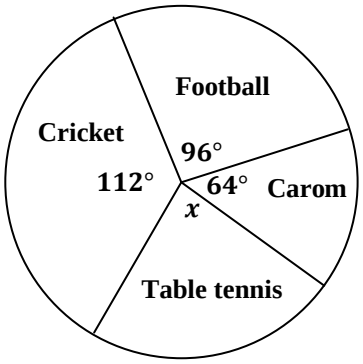
03) The assessed annual value of a certain house is Rs 50000. The monthly rent charged by owner is Rs 4000. The relevant provincial council charges 6% of the assessed annual value of the house as rates. Owner has to spend 16 % of the rent on maintenance.

(i) Calculate the rates that have to paid for a year?

(ii) Calculate the annual rent of this house?

(iii) How much of the rent is owner left at the end of the year, after the relevant expenses are met?

04) The pie chart given below illustrates the information gathered from the members of a sports club regarding the sport they like most.



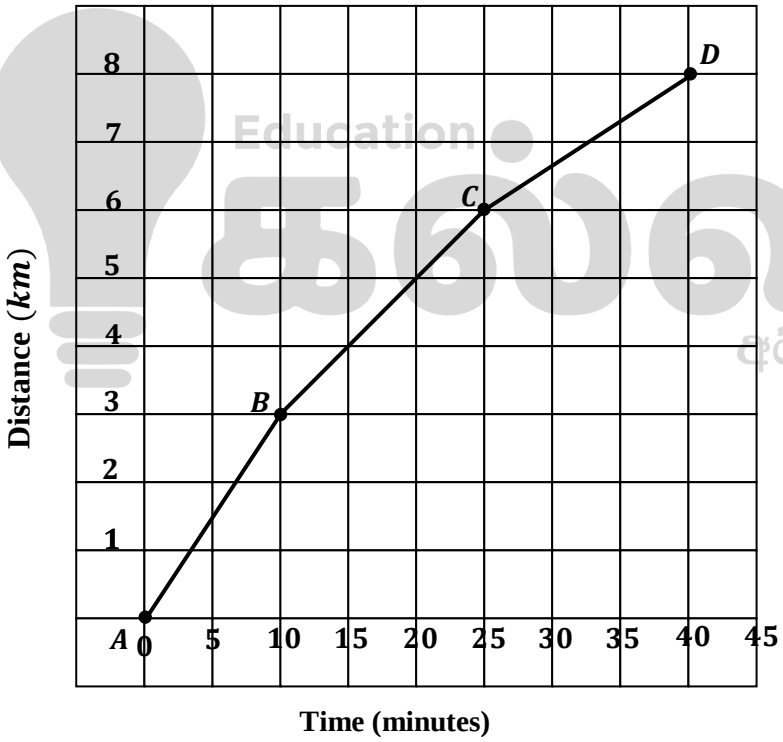
(i) Find the value of x

(ii) If the number of members who like football is 36, how many members like Table tennis?

(iii) Find the total number of members are in this sports club.

(iv) If 5 members who like football joined with this sports club further calculate the new angle of members who like cricket.

05) A distance - time graph of the motion of a man who travels from his home to the city on his bicycle is given below.



(i) How far is it from his home to the city?

(ii) How long it take him to reach the city?

(iii) Separately calculate the speeds at which he travelled from A to B, from B to C and C to D. In which path the speed is low Give reason?

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Grade - 10 | **32 T II** | **Time:- 2.30 hours**

Part - II A

Answer four questions.

01) Prepare a table of values with $-2 \leq x \leq 2$ to draw the graph of the function $y = 5 - 2x^2$.

(i) Draw the graph of $y = 5 - 2x^2$ using suitable axis.

(ii) Using the graph, find the roots of $5 - 2x^2 = 0$.

(iii) If the graph of the function $y = 5 - 2x^2$ moves upwards along the y axis by 3 units write the equation of the graph?

02) A person takes a loan on annual simple interest, promising to settle the loan in 3 years by paying Rs 6500. However he was only able to settle the loan in 5 years, at which he had to pay Rs 7500.

(i) Calculate the interest he has to pay for one year?

(ii) Find the loan obtained by him?

(iii) Calculate the annual interest rate?

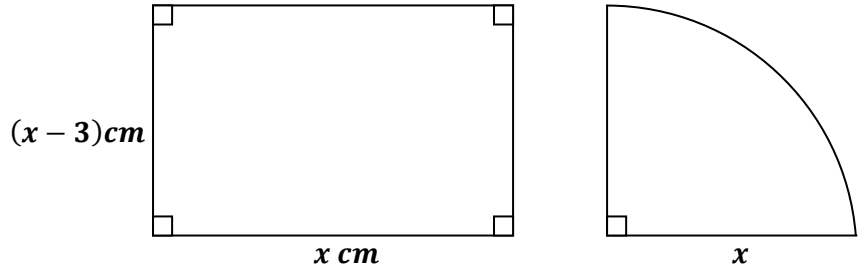
03) The price of 3 Oranges and 4 Apples is Rs 225. The price of 7 Apples and the price of 6 Oranges are equal.

(i) If the price of an Orange is Rs. x and the price of an Apple is Rs. y, make two simultaneous equations?

(ii) Find the price of an Apple and an Orange by solving equations?

(iii) A person who bought 10 Oranges and some Apples and paid Rs 500 note, How many apples where he bought?

04) According to the given figures,



(i) find the area of rectangle in terms of 'x'?

(ii) Find the area of quarter circular lamina in terms of 'x'?

(iii) If the area of two figures are equal, make an equation interms of x.

(iv) Solve the equation and find the area of rectangle?

05) (i) Remove the bracket and simplify

$(3x-2)(2x+3)$

(ii) Factorize

$(3x-2)^2-4$

(iii) Simplify $\frac{1}{x^2+3x-10}-\frac{1}{x^2+5x}$

(iv) Find the value of $91^2+5\times 91-36$ by using the knowledge of factors.

06) It took 60 men 8 days to complete a certain road.

(i) If 15 men can be completed 3 km road in 2 days. Find the length will be completed by 60 men in one day?

(ii) Find the total length of road?

(iii) If the owner wishes to complete the certain road before 3 days, find how many men are required to complete the same task?

Part - II B

Answer four questions.

07) From a group of 60 students in a class, 50% like to listen to the radio and don't like to watch TV, 40% like to watch TV and 8 student like to listen to the radio.

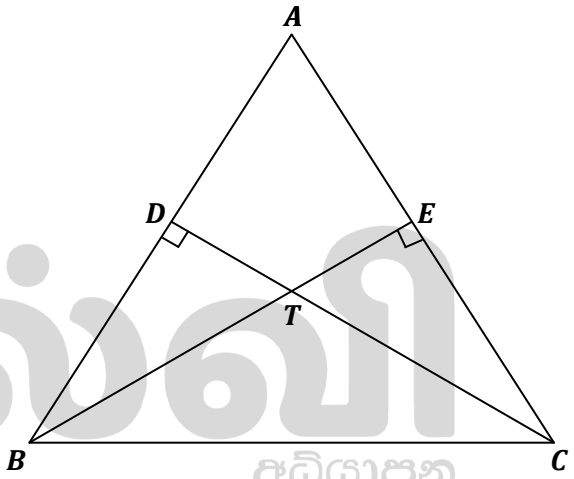
(i) Represent this information in a Venn diagram.

(ii) How many of the students don't like both activities?

(iii) How many of the students like only to watch TV?

(iv) How many of the students like only one of these two activities?

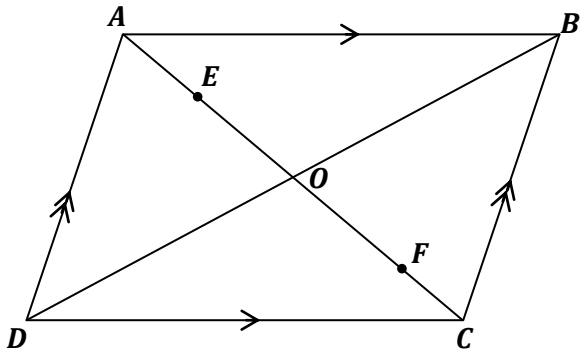
08) In the given tringle ABC, the perpendicular drawn from the verticies from C and B to the sides AB and AC are CD and BE respectively and CD and BE meet at T. If $BD = CE$



(i) Show that $\Delta\, BDC \equiv \Delta\, BEC$

(ii) Prove that, $\Delta\, ADE$ is an equilateral triangle

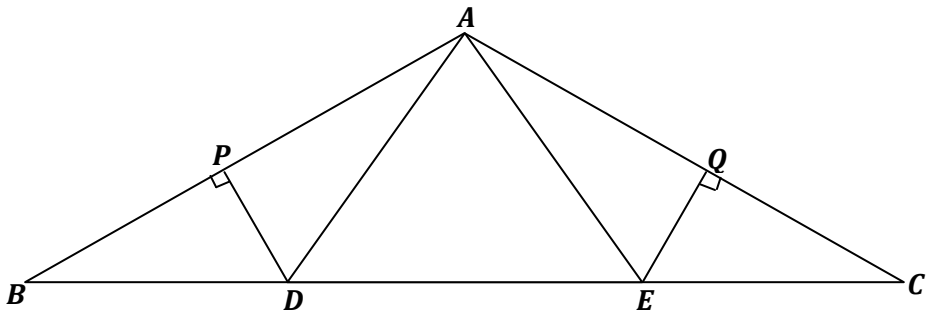
09) In the given parallelogram $ABCD$ diagonals AC and BD are meet at O and E and F are two points on AC where $AF = CE$.



(i) Show that $EO = FO$

(ii) Show that $DEBF$ is a parallelogram.

10)



In the given figure $AD = BD$, $AE = EC$, DP is perpendicular to AB and EQ is perpendicular to AC.

(i) If $\widehat{DP} = 55°$, find the value of $P\hat{A}D$? Give reason?7

(ii) If $\hat{A}E = 30°$, Find $E\hat{A}C$?

(iii) Find the value of $Q\hat{E}C$

11) (i) solve without log table.

$$\lg x + \lg 4 = \lg 2 + \lg 3 + 1$$

(b) Find the value using log table.

$$\frac{7.345 \times 112.8}{82.11}$$

12) A wire is made as right angled triangle shaped. It hypotenuse side is c, and other sides are $'a'$ and $'b'$. Where $c = \sqrt{a^2 + b^2}$.

(i) If $c = 30.5\ cm$, $a = 5.5\ cm$ find the length of b.

(ii) Find the total length of wire?

(iii) If A square shape is made by same wire, find the length of a side?

(iv) Calculate the area of this square?