



**PROVINCIAL DEPARTMENT OF EDUCATION
NORTHERN PROVINCE**

SECOND TERM EXAM – 2019

MATHEMATICS



Index No:

Grade: 10

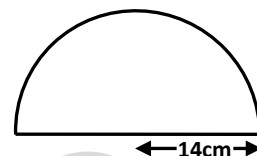
Time:- 2 Hours

PART I – A

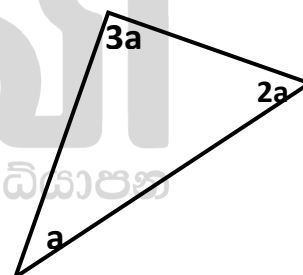
ANSWER FOR ALL QUESTION IN THIS PAPER

1) Simplify $1\frac{3}{5} + \frac{3}{5} \times \frac{1}{3}$

2) Find the perimeter of the given diagram



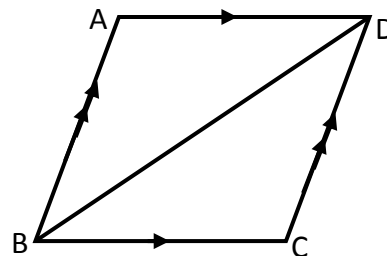
3) Find the value of a of the given figure



4) If $2x^2 - 3x - 5 = (2x-a)(x+b)$ Find the value of a,b

5) If area of ΔABC is 40 cm^2 in the given parallelogram ABCD, In the table, Place the mark (✓) in the boxes in front of the True statements, if any, and mark (✗) in the boxes in front of the False statements, if any,

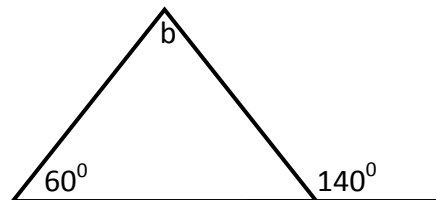
Area of parallelogram ABCD is 80 cm^2	
Area of ΔACD is 40 cm^2	



6) If a motor bike pass 135km distance in 3 hours. Find the speed of motor bike?

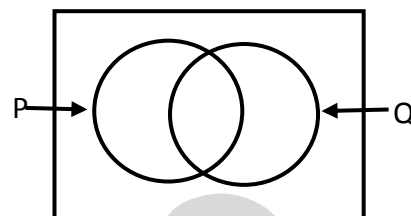
7) Simplify $\frac{5x-1}{4x} - \frac{x-1}{x}$

8) Find the value of b according to the given data



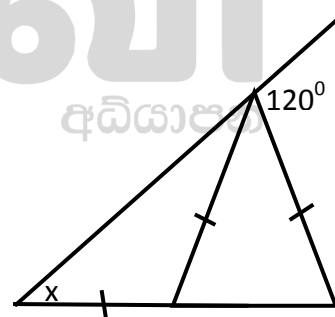
9) Write the logarithm form of $2^{-3} = \frac{1}{8}$

10) Shaded the Venn diagram of $P' \cap Q$



11) Find the L.C. M of the following $8a^2b$, $12ab$, $6ab^2$

12) Find the value of x according to the given data?



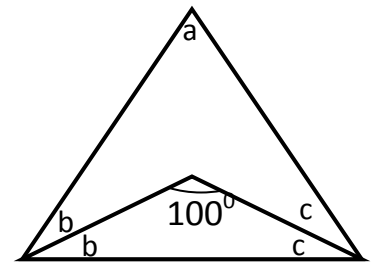
13) If $3a-5b = 24$, $5a-3b = 16$, Find the value of $a-b$ without solving the given equation?

14) Annual value of a land is Rs 500 000. A Person paid Rs 5 000 as a quarter annual rate for this land. Find the annual rate percent?

15) Find the value of the following according to the data of the given

i.) $b+c$

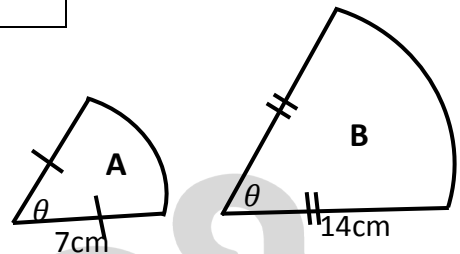
ii.) a



16) Complete the mid value column

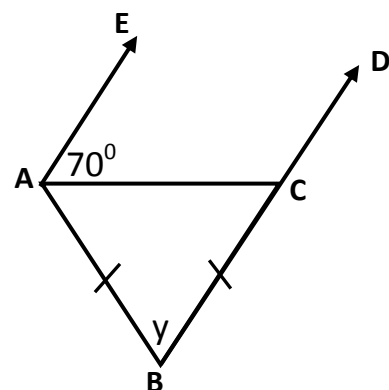
Class interval	Mid value
0 - 20
21 - 40	30.5
41 - 60
61 - 80
81 - 100

17) Area of sector B is how many times larger than area of sector A



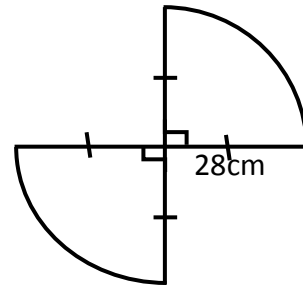
18) Solve $\frac{2a}{7} - \frac{3a}{14} = \frac{4}{7}$

19) If $AE \parallel BD$ in the given figure find the value of y ?

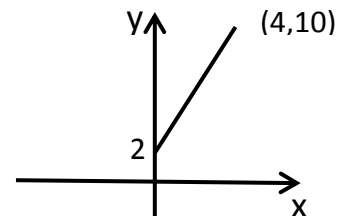


20) Find the first approximation value of $\sqrt{52}$

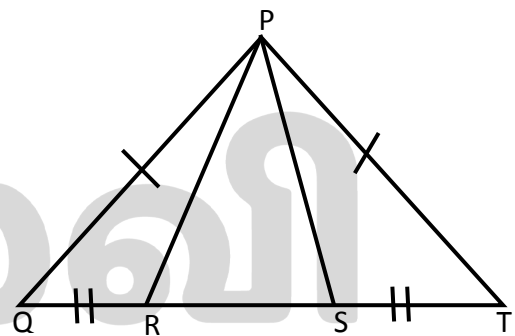
21) Find the Area of given figure?



22) Find the equation of the given graph?



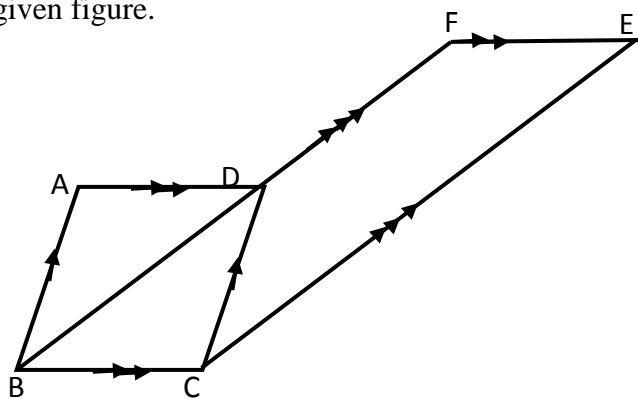
23) Write a pair of Congruent triangles and the reason?



24) If $n(A) = 10$, $n(B) = 6$, $n(A \cup B) = 12$ Find $n(A \cap B)$?

25) ABCD, BCEF are two parallelograms in the given figure.

If $\hat{ADB} = 45^\circ$ find the value of \hat{FEC} ?



PART I –B

01) Amount of money was given partially for construction of new shopping complex in Colombo development program. $\frac{3}{5}$ Of value of shopping complex money was given initially. Then $\frac{1}{2}$ of the remaining portion of its value gave. Finally they was given the remaining amount Rs 150,000

i.) Find the fraction of remaining money after the initial amount that was given?.

ii.) Find the fraction of money was given second time.

iii.) Find the fraction of money was given first two instances.

iv.) Find the amount of money was given second time?

v.) Find the Value of shopping complex?

02)

Distance (m)	30	60	90	120	150
Time (S)	10	20	30	40	50

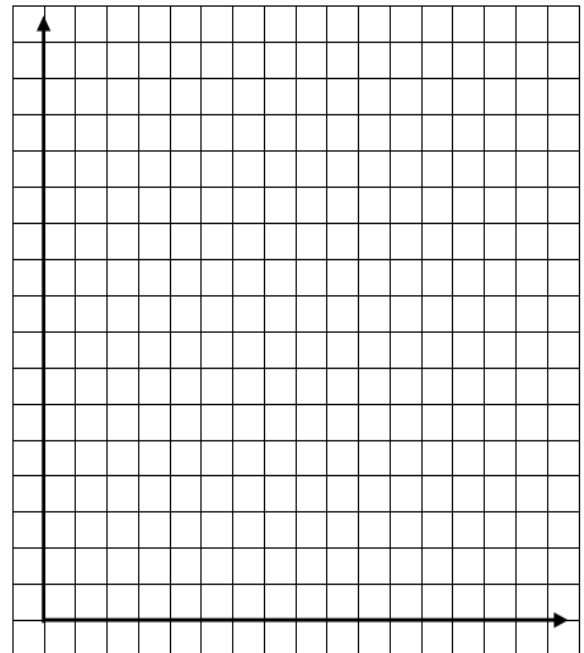
i.) sketch the distance time graph according the above table for the motion of a vehicle

ii.) Find the gradient of the graph

iii.) Find the uniform velocity?

iv.) What is the distance it moved in 5 minutes?

v.) Find the time taken it pass 3km in minutes and seconds?



03)	Customs duty	\therefore 30% of imported value of a thing
	Transport cost	\therefore 10% value of a thing after paying customs duty
	1US\$	\therefore Rs 120

800 US\$ Value of laptop imported in America

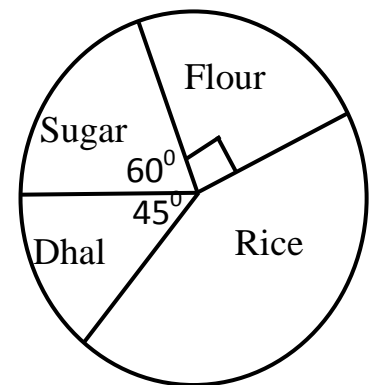
- i.) Find the customs duty for imported in US\$?
- ii.) Find the transport cost in US\$?
- iii.) Find the value of laptop (including the customs duty and transport) in Rupees?
- iv.) If this laptop marked to get 20% profit, find the value of mark price?
- v.) If 5% discount given for its sold, find the selling price?

04) Given pie chart shows for a perches details by a person

- i.) Find the angle of sector denote the rice?

- ii.) Which thing is perches most amount?

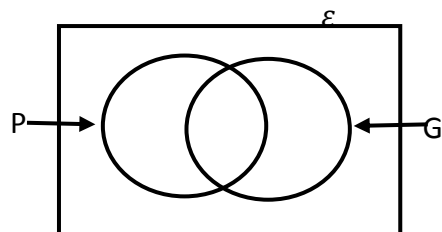
- iii.) If the least amount of perches is 135kg, find the mass of other things?



iv.) Write the percentage of amount of flour out of whole amount?

- 05.) $\varepsilon = \{\text{Advanced level Arts stream students}\}$
 $G = \{\text{Students who select Geography}\}$
 $P = \{\text{Students who select Political science}\}$

If $n(\varepsilon) = 50$, $n(G) = 30$, $n(P) = 35$, $n(G \cap P) = 20$,



i.) Denote the above data in given Venn diagram

ii.) How many students select geography or political science?

iii.) Shade the region $(G \cap P)^c$ in the above Venn diagram.

iv.) Find the probability if advance level students taken at randomly that student select at least one subject?



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Time :- 3 Hours

Answer the 5 questions only from each Part II A and Part II B

Part II- A

- 1) Youth club sold Rs 100, Rs 200, Rs 500 values of tickets for the musical programme. Following amount of tickets were sold for this program

Face value of the ticket	Number of tickets
Rs 100	625
Rs 200	315
Rs 500	210

Total expenses of this musical program is Rs 80 500. Find the total income of this program, remaining amount (after the expenses) was deposit in private bank at 12% simple interest. How many years will take to get Rs 240000 from the Bank?

- 2) Complete the following table to sketch the curve of $Y=2x^2+5$

X	-3	-2	-1	0	1	2	3
y	23	7	5	7	13	23

- i.) Find the value of y when $x = -2$?
- ii.) Sketch the curve for the suitable scale.
- iii.) Write the equation of symmetric axis?
- iv.) Find the minimum/maximum value of function?
- v.) Write the range of x when $y < 8$.
- vi.) Hence deduce to write the equation of curve when the curve move to downwards by 5 units

- 3) Length of a side of square is x cm, length and breadth of rectangle are 4cm less than the two times of length of square, 3cm more than the length of square respectively. If the difference between the area of rectangle and square is 68cm^2 find the length of square.

4) i.) If $\lg 2 = 0.3010$ find the value of $\lg 5$ without using log table.

ii.) Solve $\log_3 18 + \log_3 x = \log_3 24 - \log_3 12$

iii.) Find the Value of the following using the log arithmetic table.

$$\frac{38.26 \times 875.3}{6.725}$$

5) a.) Solve $\frac{4}{x+5} + \frac{5}{2x+10} = \frac{13}{16}$

b.) Value of 3 apples and 4 oranges is Rs 190. Price of 2 apples and 3 oranges is Rs 135

i.) Write the simultaneous equations from the above data.

ii.) Find the price of an Apple and an Orange to solve these equations?

6) 15 men do complete a certain work in 8 days.

i.) Find the amount of this task in man days?

ii.) If one man day wage is Rs 1000, wage is increase by 20%. How much additional amount did pay for this?

iii.) Consider the 5 times amount of previous task,

a.) How many days will take to do complete above task by 20 men?

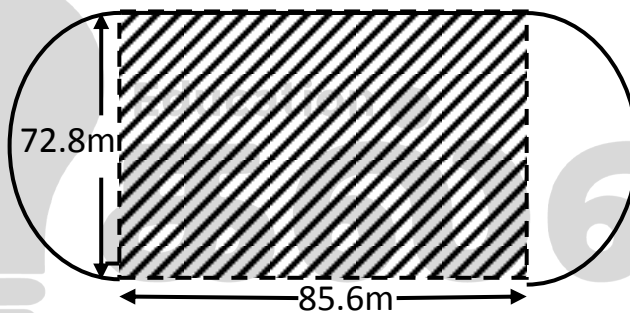
b.) If this task to do complete in 25 days, how many more men need?

PartII- B
Income tax details 2019

Annul income	percentage of tax
First Rs 250 000	without paying tax
Next Rs250 000	5%
Next Rs500 000	20%
Above 1 000 000	30%

- i.) A person got Rs 850 000 as annual income. How much amount did he pay income tax?
- ii.) If a person paid Rs 300 000 as an income tax, find his annual income?

8) Given diagram shows the running track of a playground.



- i.) Find the perimeter of the play ground?
- ii.) Find the area of shaded part rectangle?
- iii.) If cost of 1m^2 land was planted by grass is Rs 500, find the total cost when the whole land was planted by grass?

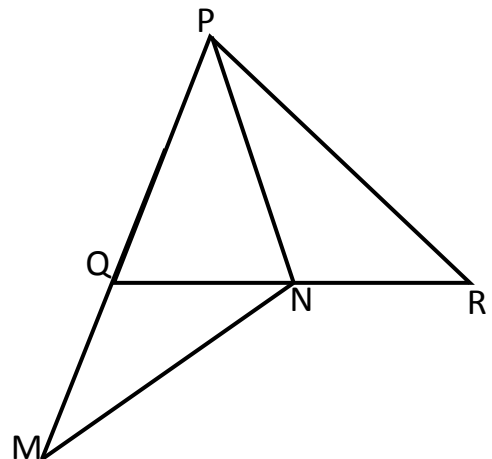
9) N is midpoint QR in the ΔPQR , PQ is produced to M

Such that $PQ=QM$. If $PQ=PN$, $\angle PQR = \angle PMN$

Show that the following

- i) $PR=MN$
- ii) $\angle PMN = \angle QNM$

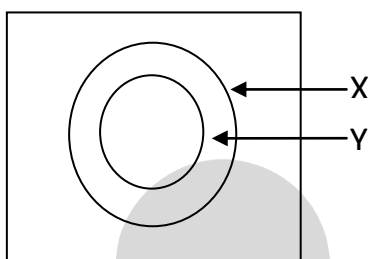
iii) Find the value of $\angle PQN$



10) Construct cm/mm scale of straight edge

- i.) Draw the line AB such that $AB=6\text{cm}$
- ii.) Construct the $\triangle ABC$ such that $BC = 7.5\text{cm}$ and $\angle C=60^\circ$
- iii.) Construct the angle bisector $\angle C$.
- iv.) Mark the point D such that intersects the angle bisector and which is parallel to AB through C.
- v.) Write the special name of quadrilateral ABCD? Give the reason.

11) Following incomplete Venn diagram denotes the opinion of sports activity by 40 students in a class.



$X = \{\text{students who like cricket}\}$

$Y = \{\text{students who like volley ball}\}$

35 students like cricket. 28 students like volleyball and also they like cricket.

- i.) Copy the above Venn diagram and show the above details?
- ii.) Shade the region the student who like only cricket.
- iii.) Write the relationship between X and Y in set notation?
- iv.) How many students did not like at least one game?
- v.) Write the percentage of students who like volleyball out of whole student?

12) a). Write any 2 properties of parallelogram.

b). ABCD, ABEF are two parallelogram such that $\angle C = \angle F$ and D is the midpoint of BE in the given figure.

i) Copy the diagram and denotes the data on it.

ii) Show that $DC=FE$

iii) Show that $AD=BD$

iv) Show that $\triangle ADE$ is an isosceles.

