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புனித பேதுரு கல்லூரி, கொழும்பு 4
St. Peter's College - Colombo 04

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தரம் 10 - விசேட மீளாய்வு - 2022
Grade 10- Second Term Examination - 2022

ගණිතය I
Mathematics I

Part A

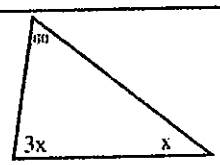
පැය දෙකයි
Two Hours

Answer all questions in the paper itself.

1. An exported product charges a tax of 12%. If the value of the product is Rs. 18000, find the amount of tax charged.

2. Factorize. $x^2 + 7x + 12$

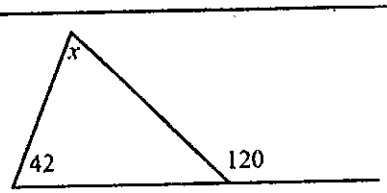
3. Find the value of x .



4) $log_a b = c$ Write in index form.

5) Find the time taken to fill a tank of capacity $720l$, using a pipe which pumps water at a speed of 80 litres per minute.

6) Find the value of x .

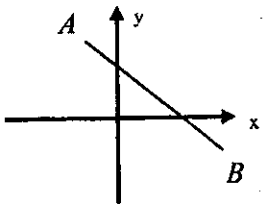


7) Find the area of the lid of a cylindrical tin with a radius of $7cm$.

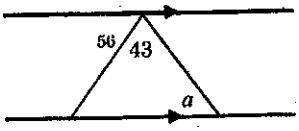
8) Simplify. $\frac{3a}{5x} \div \frac{6a^2}{20^{\ 2}}$

9) (0 , 5) and (3 , 2) are two points on the straight line AB.

Find the gradient of the line AB.



10) Find the value of a.



11) Solve $x^2 - 4 = 0$, and find the value of x.

12) If $Rs.900$ is 15 % of a certain price, Find the price.

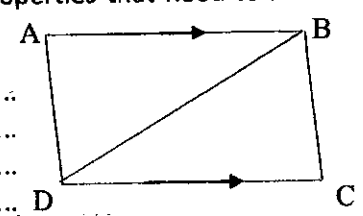
13) If the given quadrilateral is to be a parallelogram, state two properties that need to be satisfied. (State the reasons).

i) .....

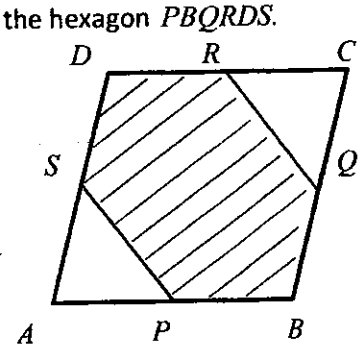
.....

ii) .....

.....



14) A side length of the $ABCD$ rhombus is $8cm$. The mid points of AB , BC , CD and DA are P , Q R and S respectively. If the diagonal BD is $10cm$ find the perimeter of the hexagon $PBQRDS$.



15) Find the L.C.M of the following algebraic expression.

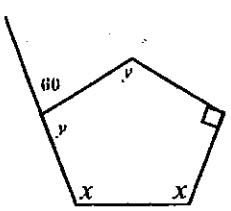
$3x^2$, $6xy$, $2y$

16) Mark '√' if the statement is correct or '×' if the statement is incorrect.

(1)	Hypotenuse is the side opposite the obtuse angle in a triangle.	
(2)	The hypotenuse is equal to the sum of the remaining two sides of a triangle.	

17) If the general term of a number pattern is $\frac{n(n+1)}{2}$ find the value of the 10^{th} term.

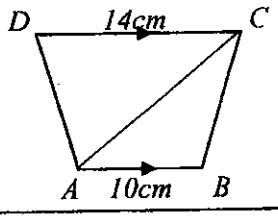
18) Using the data given, find the value of x.



19) If the scale of a certain map is, 1:50000, then what is actual length in m , for a distance of $5cm$ in the map?

20) A bag contains 3 red pebbles, 2 blue pebbles and 4 green pebbles. If a pebble is selected, what is the probability that the pebble is not green?

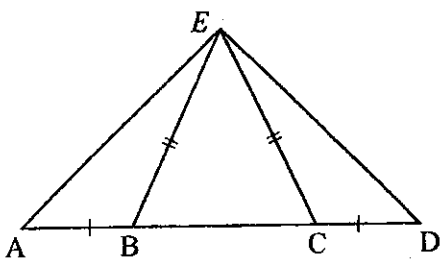
21) If the area of the ABCD trapezium is 72 cm^2 , Find the area of the triangle ADC.



22) If A and B are disjoint sets, Find the value of $n(A \cap B)$.

23) What is the distance a motor vehicle travels in 25 seconds at a uniform speed of $72kmh^{-1}$. State the distance in meters?

24) According to the given data, under what condition do the triangles ABE and CDE become congruent?



25) AB and CD are two flower paths at straight lines. A post lies on CD, equidistant to A and B. Using the knowledge on loci, mark the place of the post by way of a sketch drawing.

A _____ B

C _____ D

Part B

Answer all questions in the paper itself.

1) Mineth spends $\frac{1}{3}$ on vegetables out of the money he took to the market. $\frac{1}{4}$ of the remaining was spent on fruits bought.

i) What is the remaining part after spending on vegetables?

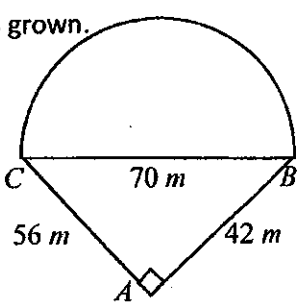
ii) What fraction is the amount spent on fruits, out of the total money?

iii) If the balance remaining after spending on vegetables and fruits is $Rs.\,800$, then find the amount Mineth took to the market.

iv) If he spent half the amount he did when purchasing fruits, what will the balance remaining be, out of the total money, as a fraction?

2) The below diagram shows a school ground which consists of a pond depicted by the right-angled triangle ABC, and a semi-circluar area with a diameter BC, where grass is grown.

i) It is proposed to construct a fence along the semi-circular boundary. What is it's length?



ii) If a boundary wall is constructed along AB and AC, Find it's length, and thereby find the total cost, if the cost for each meter is $Rs.\,500$.

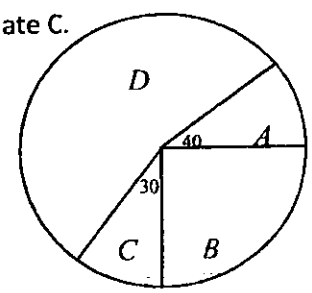
iii) Find the area of the part where grass is grown.

iv) If a flower bed needs to be made on the grass grown semi-circular part, $5cm$ away from BC boundary ensuring symmetry. The flower bed should be square shaped with an area of $36\ m^2$. Draw a sketch of the above.

3) At a provinsional election, the following pie chart shows the voting made by 1080 voters in a certain province.

i) The candidate B has taken three times more votes than the candidate C.

Find the angle of B.



ii) What is the fraction of the votes taken by candidate D out of the total votes?

iii) Find the number of votes candidate C received.

iv) State as a percentage, the difference of votes between the winner and the second highest, out of the total votes.

4) The assessed annual value of the shop owned by Dineth, in the city is $Rs.\,80000$.

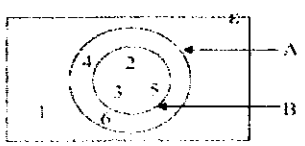
i) If the annual rates is 5% , calculate the rates that have to be paid for an year.

ii) Calculate the rates that have to be paid for a quarter.

iii) If a 5% discount is given for payments before a certain date, calculate the discount received.

iv) If Dineth had to pay a customs duty of $Rs.\,86400$, where the customs duty was 12%, Find the value of the goods imported by Dineth.

5) a) Answer the questions using the Venn diagram given below.



i) List the elements of the following sets.

$A = \{\quad\quad\}$ $B = \{\quad\quad\}$

$A \cap B = \{\quad\quad\}$ $A \cup B = \{\quad\quad\}$

ii) Shade, $A \cap B'$

iii) Find $n(A \cup B')$

b) Using the above information, prove $n(A \cup B) = n(A) + n(B) - n(A \cap B)$