



S. Thomas' College - Mount Lavinia
Term II Examination - 2016
Mathematics – I

Middle 6

Time : 2 hours

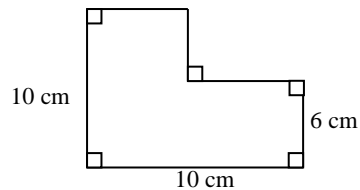
Part A

Answer all questions on this paper itself

1. The value of $\sqrt{16 + 9}$ is equal to
i. 7 ii. 25 iii. 50 iv. 5

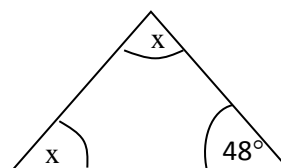
2. A trader bought a dress for Rs. 150 and sold it for Rs. 180. Find
i. the profit ii. the percentage of profit

3. Find the perimeter of the given figure.



4. If $5(x - y) - 2(x - y) = k(x - y)$
Find the value of k .

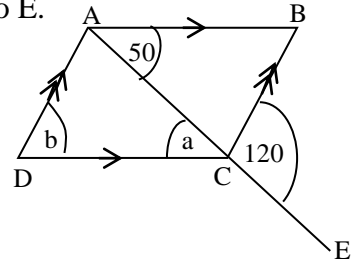
5. Find the value of x



6. $A = \{9, 18, 27, 36, 45\}$
Describe the set A using the set builder method.

7. ABCD is a parallelogram. The diagonal AC is produced to E.
Find the value of

i. a°



ii. b°

8. Solve. $\frac{7}{x} - \frac{5}{x} = \frac{1}{4}$

9. The monthly telephone bill of a person is Rs. 2600. If 15% of VAT is added, what is his total monthly bill?

10. Factorize. $x^2 - 1 + (x - 1)$

17. Find the L.C.M of $4x^2$, $6xy^2$.

18.

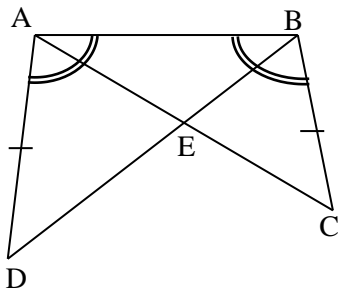
- Saving for the savers
- Only one bank ABC who pays higher of interest.
- For Rs.100,000 fixed deposit Rs.20,000 after one year

According to the above advertisement find the interest rate for a year.

19. Find the roots of $(3x - 2)(2x + 3) = 0$

20. The weight of some packets of medicines is 5g, 8g, 12g and 15g. How many packets are weighing more than the mean weight?

21.

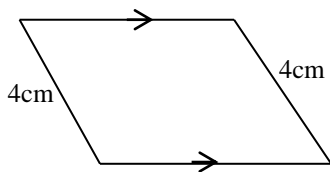


According to the given diagram $\hat{DAB} = \hat{ABC}$

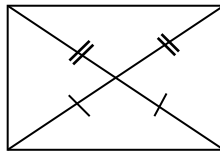
- Write a pairs of congruent triangles.
- Mention the case of congruency under which the above pair of triangles are congruent.

22. 5 men completed a task by working 8 hours a day for 5 days. If they work 10 hours per day how many days will it take to complete the task?

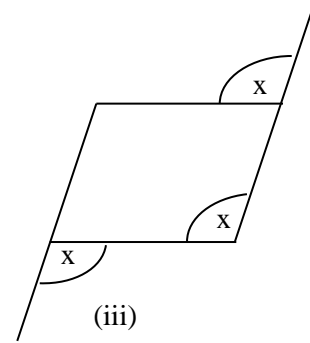
23. According to the given information select the parallelograms among the following quadrilaterals



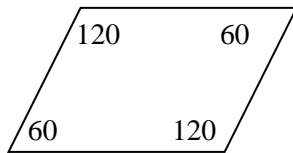
(i)



(ii)



(iii)



(iv)

Answer

24. What is the difference between a square and a rhombus?

25. If $\log_a 3 = x$ and $\log_a 5 = y$. Find the value of $\log_a 75$ in terms of x and y .

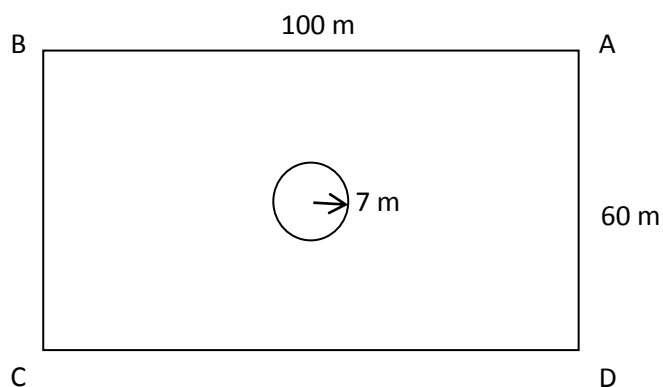
Paper I - Part B

Answer all the questions on the paper itself

1. A group of children went on an educational trip by bus. By 9.00 am they had travelled $\frac{1}{4}$ of the total distance. By 12 noon they had completed $\frac{5}{6}$ of the remaining distance and by 1.00 pm they had reached to the required destination.
- What fraction of the total distance did they need to travel after 9.00 am?
 - What fraction of the total distance did they travel from 9.00 to 12 noon?
 - If they travel 30 km during the last hour of the journey, show the total distance they travelled is 240 km.
 - After the trip, if they return on the same route within 4 hrs, find the speed of the bus.

2. ABCD is a rectangular land as shown in the figure. A circular pond with radius 7 m is in the middle of the land.

- i. Find the perimeter of the land.



- ii. Find the area of the pond.

- iii. Find the area of the remaining land.

- iv. A 2m wide road is needed to be made externally along the two boundaries of AB and BC. Sketch it in the given diagram and mark the measurements.

- v. If it costs Rs. 1200 per 1m^2 to pave the road, find the total amount needed

3. A businessman paid Rs. 50,000 as income tax. Rs. 500,000 of his income was exempted from tax. Out of the taxable income first Rs. 500,000 was charged at 4% and any income left as 8%.
- i. Find the maximum annual income of a person who is not a tax - payer.

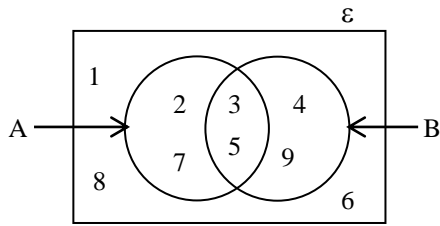
 - ii. What is the amount paid as tax at the rate of 4%?

 - iii. Find the amount of money he paid as income tax at the rate of 8%.

 - iv. Find the income of the businessmen charged at 8%.

 - v. Find the annual income of the businessman.

4. i. Using the given Venn - diagram answer the following questions.



a) Describe the set A.

b) Write the universal set relevant to the above Venn diagram.

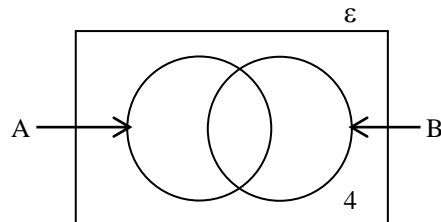
c) Describe the following sets using the set notation.

1) $\{3, 5\}$

2) $\{2, 7, 4, 9, 3, 5\}$

3) $\{1, 6, 8\}$

ii. A and B are two sets as given in the following Venn diagram.



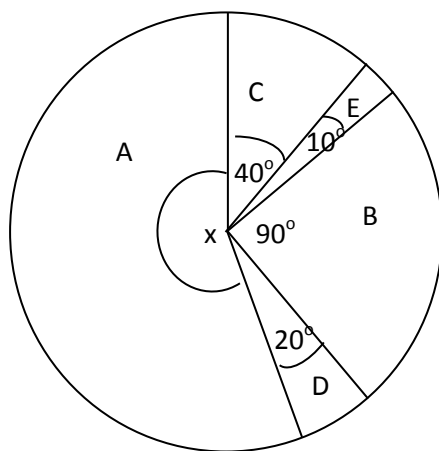
i. If the number of elements in the universal set is 29, find $n(A \cup B)$.

ii. In $n(A) = 16$ find the no of elements only in set B.

iii. If $n(B) = 14$ find the no of elements only in set A.

iv. Justify that $n(A \cup B) = n(A) + n(B) - n(A \cap B)$ is true

5. A survey was done by a group of students in a certain class, to find information about the mode of transport, used by the students to come to school.



- A - Private vehicle
- B - Van
- C - School Bus
- D - Walking
- E - Train

- i. What is the mode of transport used by the least number of students?
- ii. Find the magnitude of the angle at the center of the sector, which denotes the students who used private vehicles.
- iii. If 200 students walked to school, find the total number of students in the school.
- iv. What is the mode of transport used by 25% of students and find the number of students denoted by the sector?
- v. The group leader says the no of students who use private vehicles is 20 times more than the students coming by train. Show whether the above statement is true or false.