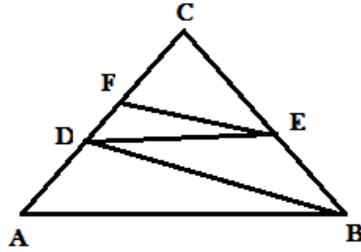


SECTION-A

- What is the largest number that divides 245 and 1029, leaving remainder 5 in each case?
(a) 15 (b) 16 (c) 19 (d) 5
- If p is a prime number and p divides a^2 (a is a positive integer), then which of the following is true:
(a) p does not divide a (b) p divides a (c) p^2 divides a (d) p divides \sqrt{a}
- If $ax + by = a^2 - b^2$ and $bx + ay = 0$, then value of $(x + y)$ is :
(a) $a^2 - b^2$ (b) $b - a$ (c) $a - b$ (d) $a^2 + b^2$
- The pair of equation $y = 0$ and $y = -5$ has
(a) one solution (b) two solution (c) infinitely many solution (d) No solution
- The length of the diagonal of rhombus are 24cm and 32 cm. The length of the altitude of the rhombus in cm is :
(a) 12 (b) 12.8 (c) 19 (d) 19.2
- $\sin 20^\circ \cos 70^\circ + \cos 20^\circ \sin 70^\circ$ is
(a) 2 (b) 1 (c) 0 (d) $\sqrt{2}$
- If $\tan \theta + \cot \theta = 2$ then $\tan^2 \theta + \cot^2 \theta$ is
(a) 4 (b) 6 (c) 2 (d) 1
- If "less than" type and "more than type" of Ogive intersect each other at (20.5,15.5), then the median of the given data is :
(a) 36.0 (b) 20.5 (c) 15.5 (d) 5.5

Section B [2 marks]

- Write the denominator of the rational number $\frac{257}{5000}$ in the form $2^m \times 5^n$, where m and n are non-negative integer. Hence, write its decimal expansion without actual division.
- Divide $3x^2 - x - 4$ by $x-1$ and verify division algorithm.
- Can $(x-2)$ be the remainder on the division of $p(x) = 7x + 3$ by any polynomial $q(x)$? justify your answer?
- In given figure, $AB \parallel DE$ and $BD \parallel EF$, prove that $DC^2 = CF \times AC$

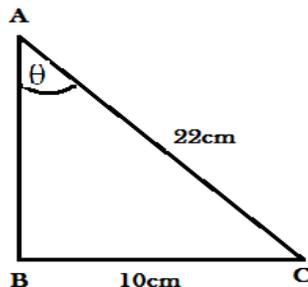


13. Find the value of θ , if $\tan 9\theta = \sin 45^\circ \cos 45^\circ + \sin 30^\circ$, given that θ is acute angle.
14. Write the following frequency distribution as less than and more than type cumulative frequency distribution.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	5	15	20	23	17

Section C [3 marks]

15. The length, breadth and height of a room are 8 m 25 cm, 6m and 75 cm and 4m 50cm respectively. Find the length of the longest rod that can be measure the three dimensions of the room exactly.
16. Solve the following equations for x and y : $3x + 2y = 9xy$ and $9x + 4y = 21xy$
17. If α and β are zeroes of the polynomial $x^2 - 6x + a$ Find the value of a if $\beta = -2$
18. Represent graphically and shade the region enclosed between lines and x - axis.
 $2x + 5y = 20$ and $3x + y = 10$
19. The other than hypogenous of right triangle ate of length 16 cm and 8 cm. Find the length of the of the largest square that can be inscribe in the triangle.
20. AD is an altitude of an equilateral ΔABC . On AD as a base another equilateral ΔADE is constructed. Show that $\text{ar}(\Delta ABC) : \text{ar}(\Delta ADE) = 3 : 4$
21. If $a \cos \theta + b \sin \theta = 8$; $a \sin \theta - b \cos \theta = 4$ Find the value of $a^2 + b^2$
22. In given fig. ΔABC is right angled at B. Justify the followings:
 (i) $\sin \theta = 5/11$ (ii) $\sin^2 \theta + \cos^2 \theta = 1$



23. Find the median of the following data:

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Number of students	5	15	25	20	7	8	10

24. If median of the following data is 240, then find value of F

Class	0-100	100-200	200-300	300-400	400-500	500-600	600-700
Frequency	15	17	f	12	9	5	2

Section-D [4 marks]

25. 6 retired teachers , 8 retires doctor and 10 retired defense officer are willing to render their service to a village . Each of them serves equal number of different persons in that village.

(a) Find the least number of person served by each (b) Suggest the value of service

26. Find the value of p and q so that 1,-2 are zeroes of the polynomial $f(x) = x^3 + 10x^2 + px + q$

27. Given that $\sqrt{2}$ is a zero of the cubic polynomial $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$. Find the other two zeroes?

28. Hypotenuse of a right angled triangle is 25 cm and out of the remaining two sides , one is longer than the other by 5 cm . Find the other two sides.

29. In an equilateral triangle , prove that three times the square of one side is equal to four times the square of one of its altitude.

30. Prove that: $\cot^2 A \left(\frac{\sec A - 1}{1 + \sin A} \right) + \sec^2 A \left(\frac{\sin A - 1}{1 + \sec A} \right) = 0$

31. if $\sin \theta = \frac{c}{\sqrt{c^2 + d^2}}$ and $d > 0$, find the value of $\cos \theta$ and $\tan \theta$

32. Evaluate: $\frac{4}{\cot^2 30^\circ} + \frac{1}{\sin^2 60^\circ} - \cos^2 45^\circ$

33. The following distribution gives the annual profit earned by 30 shops of a market :

Profit(in lakhs of rupees)	0-5	5-10	10-15	15-20	20-25
Number of shops	4	12	5	6	3

Change the above distribution to more than type cumulative frequency distribution and draw its ogive.

34. The following table shows the marks of 100 student of class X in a school during particular session. Find the mode of this distribution

Marks	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70
Number of students	7	21	34	46	66	77	100