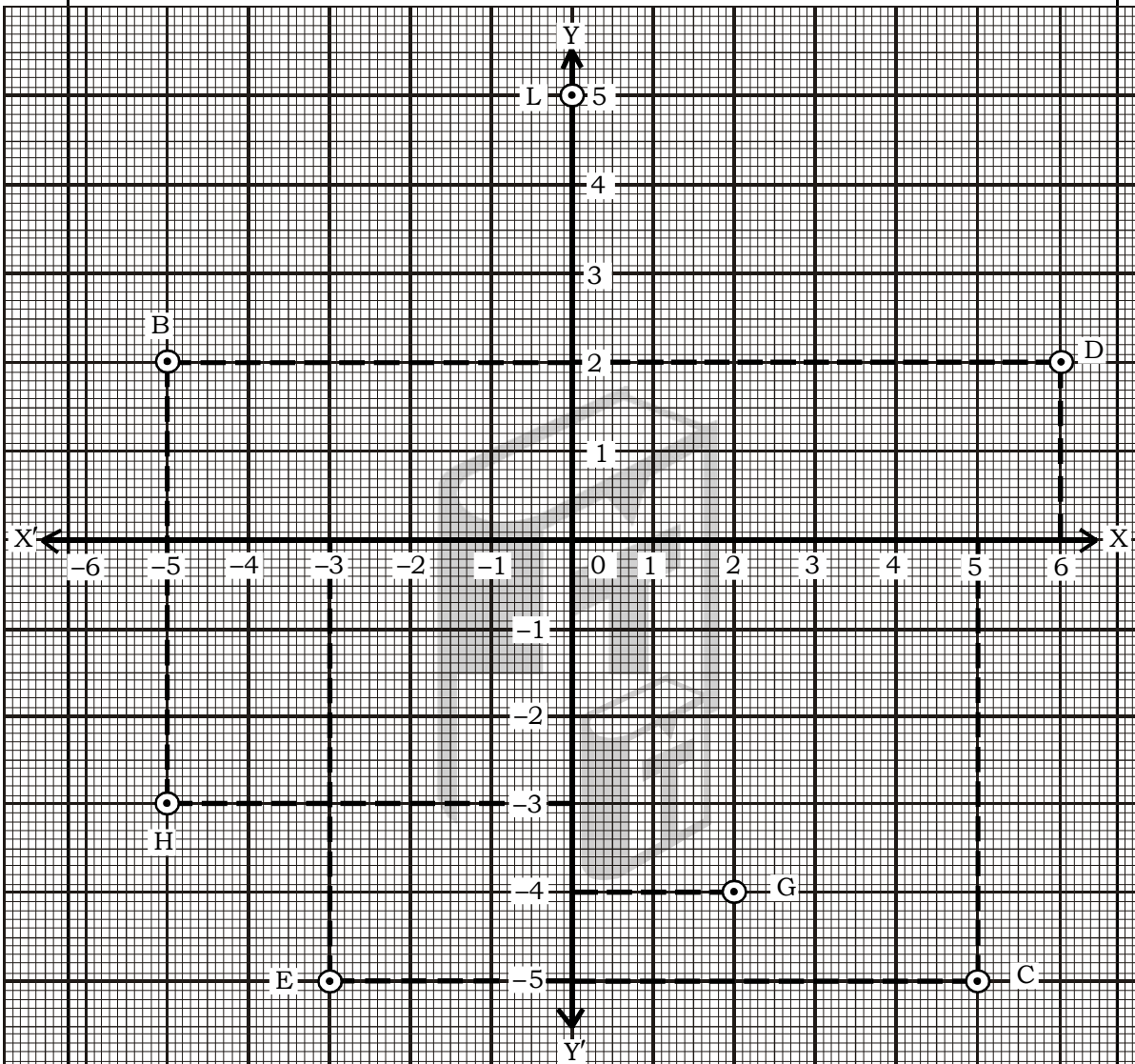


SET - A

Eng. Medium 9 th CBSE Batch :	MAHESH TUTORIALS SUBJECT : Maths Group - 1 Chapter # 1, 2, 3, 4, 5, 6, 7, 11, 12, 15 Question Paper	Test - Date: Time: 3 Hrs Marks : 100
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CHAPTER : 1		
Q : 1	Solve the following sums : [1 Mark Each]	01
	1. Write the following in decimal form and say what kind of decimal expansion each has: $4\frac{1}{8}$	
Q : 2	Solve the following sums : [2 Marks Each]	06
	2. Find six rational numbers between 3 and 4. 3. Show how $\sqrt{5}$ can be represented on the number line. 4. Express the following in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$: $0.4\bar{7}$	
Q : 3	Solve the following sums : [3 Mark]	03
	5. If $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + b\sqrt{7}$, find a, b	
CHAPTER : 2		
Q : 1	Solve the following sums : [1 Marks Each]	02
	1. Write the degree of each of the following polynomials : $5x^3 + 4x^2 + 7x$ 2. Find the value of the polynomial $5x - 4x^2 + 3$ at : $x = 2$	
Q : 2	Solve the following sums : [2 Marks Each]	08
	3. Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by $x - a$. 4. Factorise : $x^3 - 3x^2 - 9x - 5$ 5. Expand each of the following using suitable identities : $(-2x + 5y - 3z)^2$ 6. Without actually calculating the cubes, find the value of each of the following : $(28)^3 + (-15)^3 + (-13)^3$	
CHAPTER : 3		
Q : 1	Solve the following sums : [1 Marks Each]	02
	1. The points in which abscissa and ordinate have different sign will lie in _____. 2. Which of the following points lies in I and II quadrants (1, 1), (2, -2), (-2, 3), (-1, 1), (-3, -2), (4, 3).	
Q : 2	Solve the following sums : [2 Marks Each]	04
	3. Write whether the following statement are true or false. Justify your answer. (i) Point (3, 0) lies in the 1 st quadrant. (ii) A point lies on Y-axis at a distance of 2 units from X-axis. Its co-ordinates are (2, 0) 4. A point lies on the X-axis, at a distance of 7 units from the Y-axis. What are its coordinates ? What will be the co-ordinates if its lies on Y-axis at a distance of 7 units from X-axis in negative direction.	
Q : 3	Solve the following sums : [4 Mark]	04
	5. See figure, and write the following : (i) The coordinates of B.	

- (ii) The coordinates of C.
- (iii) The point identified by the coordinates $(-3, -5)$.
- (iv) The point identified by the coordinates $(2, -4)$.
- (v) The abscissa of the point D.
- (vi) The ordinate of the point H.
- (vii) The coordinates of point L.
- (viii) The coordinates of the point M.



CHAPTER : 4

Q : 1 Solve the following sums : [1 Mark]

01

1. Express the following linear equations in the form $ax + by + c = 0$ and indicate the values of a, b and c in each case : $x = 3y$

Q : 2 Solve the following sums : [2 Mark]

02

2. Write four solutions for each of the following equations : $2x + y = 7$

Q : 3 Solve the following sums : [3 Mark]

03

3. The taxi fare in a city is as follows : For the first kilometre, the fare is Rs. 8 and for the subsequent distance it is Rs. 5 per km. Taking the distance covered as x km and total fare as Rs. y , write a linear equation for this information, and draw its graph.

Q : 4 Solve the following sums : [4 Mark]

04

5. Yamini and Fatima, two students of Class IX of a school, together contributed Rs. 100 towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear equation which this data satisfies. (You may take their contributions as Rs. x and Rs. y). Draw the graph of the same.

CHAPTER : 5

Q : 1 Solve the following sums : [1 Mark]

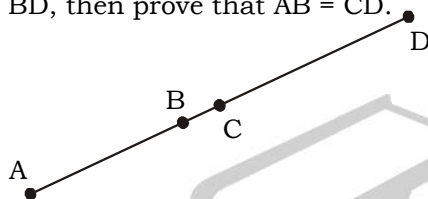
01

1. John is of the same age as Mohan. Ram is also of the same age as Mohan. State the Euclid's axiom that illustrates the relative ages of John and Ram.

Q : 2 Solve the following sums : [2 Marks Each]

06

2. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2} AB$. Explain by drawing the figure.
3. In Figure, if $AC = BD$, then prove that $AB = CD$.



4. It is known that $x + y = 10$ and that $x = z$. Show that $z + y = 10$?

Q : 2 Solve the following sums : [3 Mark]

03

5.



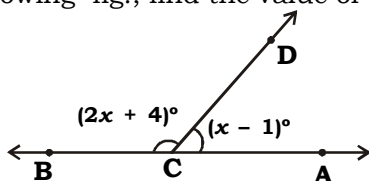
- (i) How many lines passing through A, pass through B?
(ii) How many lines passing through B, pass through A?
(iii) How many more lines can be drawn passing through A and B ?

CHAPTER : 6

Q : 1 Solve the following sums : [1 Mark]

01

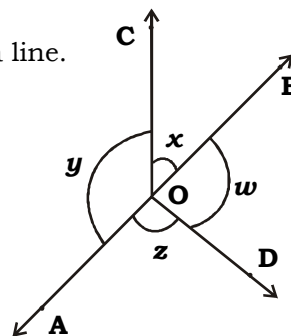
1. In the following fig., find the value of x .



Q : 2 Solve the following sums : [2 Mark]

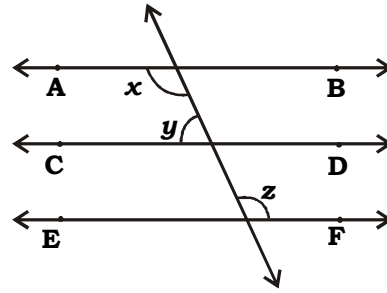
02

2. In figure, if $x + y = w + z$, then prove that AOB is a line.



Q : 3 Solve the following sums : [3 Mark]

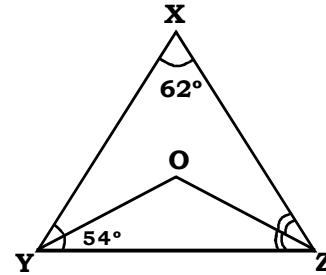
3. In figure,
if $AB \parallel CD, CD \parallel EF$
and $y : z = 3 : 7$, find x .



03

Q : 4 Solve the following sums : [4 Mark]

4. In figure, $\angle X = 62^\circ, \angle XYZ = 54^\circ$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of $\triangle XYZ$, find $\angle OZY$ and $\angle YOZ$.

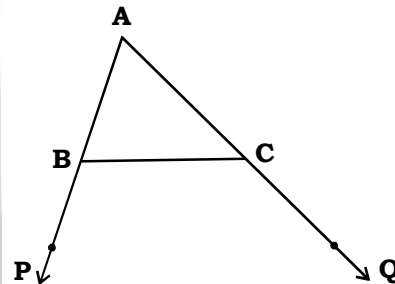


04

CHAPTER : 7

Q : 1 Solve the following sums : [1 Mark]

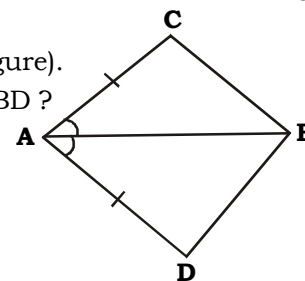
1. In figure, sides AB and AC of $\triangle ABC$ are extended to points P and Q respectively.
Also, $\angle PBC < \angle QCB$. Show that $AC > AB$.



01

Q : 2 Solve the following sums : [2 Mark]

2. In quadrilateral ACBD, $AC = AD$ and AB bisects $\angle A$ (see figure).
Show that $\triangle ABC \cong \triangle ABD$. What can you say about BC and BD ?



02

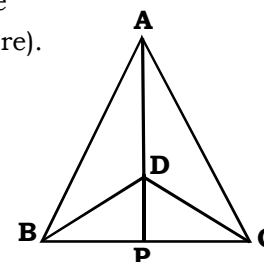
Q : 3 Solve the following sums : [3 Mark]

3. In an isosceles triangle ABC, with $AB = AC$, the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Join A to O. Show that :
(i) $OB = OC$
(ii) AO bisects $\angle A$

03

Q : 4 Solve the following sums : [4 Mark]

4. $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC (see figure).
If AD is extended to intersect BC at P, show that :
(i) $\triangle ABD \cong \triangle ACD$
(ii) $\triangle ABP \cong \triangle ACP$
(iii) AP bisect $\angle A$ as well as $\angle D$.
(iv) AP is the perpendicular bisector of BC.



04

CHAPTER : 11

Q : 1 Draw the construction and write the steps of it : [2 Mark]

02

1. Construct the angles of the following measurements : 22.5°

Q : 2 Do the construction and write the steps of it : [4 Marks Each]

08

2. Construct a triangle ABC in which $BC = 8$ cm, $\angle B = 45^\circ$ and $AB - AC = 3.5$ cm.
3. Construct a triangle XYZ in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11$ cm.

CHAPTER : 12

Q : 1 MCQ : [1 Mark]

01

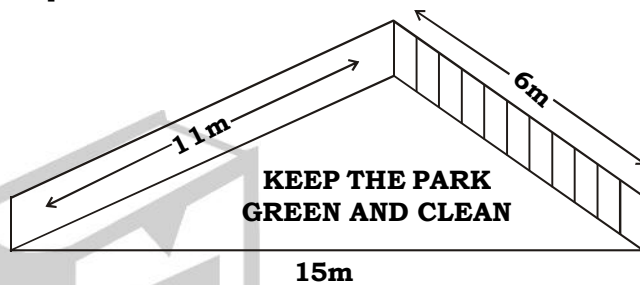
1. If the length of a median of an equilateral triangle is x cm, then its area is

(a) x^2 (b) $\frac{\sqrt{3}}{2}x^2$ (c) $\frac{x^2}{\sqrt{3}}$ (d) $\frac{x^2}{2}$

Q : 2 Solve the following sums : [2 Mark]

02

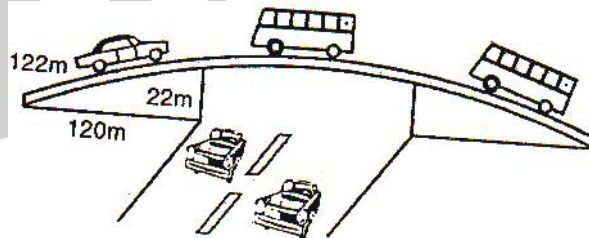
2. There is a slide in a park. One of its side walls has been painted in blue colours with a message "KEEP THE PARK GREEN AND CLEAN" (see figure). If the sides of the wall are 15m, 11m and 6m, find the area painted in colour.



Q : 3 Solve the following sums : [3 Mark]

03

3. The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 122m, 22m and 120m (see figure). The advertisements yield an earning of Rs 5000 per m^2 per year. A company hired one of its walls for 3 months. How much rent did it pay ?



Q : 4 Solve the following sums : [4 Mark]

04

4. Find the area of a quadrilateral ABCD in which $AB = 3$ cm, $BC = 4$ cm, $CD = 4$ cm, $DA = 5$ cm and $AC = 5$ cm.

CHAPTER : 15

Q : 1 Solve the following sums : [2 Marks Each]

04

1. A teacher analyses the performance of two sections of students in a mathematics test of 100 marks given in the following table.

Marks	Number of students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 and above	8
Total	90

- (i) Find the probability that a student obtained less than 20% in the mathematics test.
- (ii) Find the probability that a student obtained marks 60 or above.
2. To know the opinion of the students about the subject statistics, a survey of 200 students was conducted. The data is recorded in the following table.

Opinion	Number of students
like	135
dislike	65

Find the probability that a student chosen at random

- (i) likes statistics, (ii) does not like it.

Q : 2 Solve the following sums : [3 Marks Each]

06

3. 1500 families with 2 children were selected randomly, and the following data were recorded:

Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family, chosen at random, having

- (i) 2 girls (ii) 1 girl (iii) No girl

Also check whether the sum of these probabilities is 1.

4. An organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in a family. The information gathered is listed in the table below.

Monthly income (in Rs)	Vehicles per family			
	0	1	2	Above 2
Less than 7000	10	160	25	0
7000 - 10000	0	305	27	2
10000 - 13000	1	535	29	1
13000 - 16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is

- (i) earning Rs 10000 - 13000 per month and owning exactly 2 vehicles.
(ii) earning Rs 16000 or more per month and owning exactly 1 vehicle.
(iii) earning less than Rs. 7000 per month and does not own any vehicle.
(iv) earning Rs. 13000 - 16000 per month and owning more than 2 vehicle.
(v) owning not more than 1 vehicle.