



The Indian Academy
Nehrugram DEHRADUN
Question Bank – 2013-14
Subject - MATHS
Class - IX

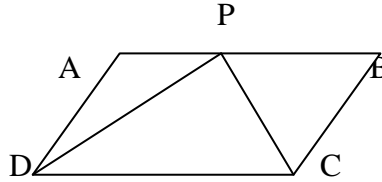
1 Mark Questions
(Algebra)

1. What type of geometrical figure is formed by the lines $x = -3, y=2, x=3, y=-2$
2. Ten years ago, a father was 10 times as old as his son. Find a linear eqⁿ expressing their present age.
3. Find the eqⁿ of a line parallel to x-axis and 4 units above the origin.
4. What is the condition that the eqⁿ $ax+by+c = 0$ represents a linear eqⁿ in two variables.
5. The graph of straight line $y = m$ is parallel to which axis.
6. Name the geometrical figure formed by the straight lines $x=4, y=-4, x = -4, y = 4$
7. What kind of solution does linear eqⁿ $5x-3y=7$ has ?
8. If $(2,0)$ is a solution of the linear eqⁿ $2x + 3y = K$, then find the value of K .
9. How many linear eqⁿs in x and y can be satisfied by $x=3$ and $y=2$?
10. Find the eqⁿ of straight line, whose graph passes through the origin.
11. The graph of linear eqⁿ $X = -2$ is parallel to
12. A point is on y-axis and 2 units above the origin find its co-ordinate.
13. If $x=2\alpha+1$ and $y=\alpha -1$, is a solution of the equation $2x-3y + 5=0$ find the value of α .
14. If $x=1$ and $y=6$ is a solution of the equation $8x-ay+a^2= 0$ find the value of a .
15. Write the eqⁿ representing x-axis.
16. Write the eqⁿ of a line passing through $(0,4)$ and parallel to x-axis.
17. Write the eqⁿ of a line parallel to y-axis and passing through the point $(-3,-7)$
18. The cost of ball pen is $\text{₹}5$ less than half of the cost of fountain pen. Write statement as a linear eqⁿ in two variables.
19. Equation of the line on which the point $(0,-6)$
20. The cost of petrol in a city is **Rs.40** per liter write an eqⁿ with x as number of litres and y total cost.

21. P and Q are two points lying on sides DC and AD respectively of parallelogram ABCD. Then find ratio ar (APB) : ar (BQC)

22. In the figure ABCD is a parallelogram, then

Find $\frac{\text{ar}(\text{||gm } ABCD)}{\text{ar}(\triangle DPC)}$

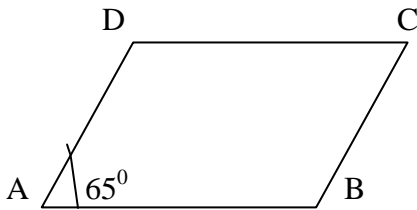


23. If a rectangle and a square stand on the same base and between the same parallels, then the ratio of their area is

24. If a triangle and a parallelogram are on the same base and between the same parallels, then the ratio of the area of the triangle to the area of parallelogram is

25. If area of parallelogram ABCD = 25 cm² and on the same base CD a $\triangle BCD$ is given such that ar ($\triangle BCD$) = x, then find value of x.

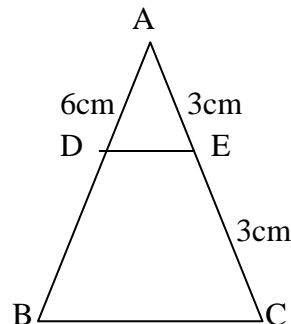
26. In the given figure, ABCD is a parallelogram if $\angle A = 65^\circ$ then $(\angle B + \angle D)$ is equal to



27. A quadrilateral, whose diagonals bisect at right angles, is called

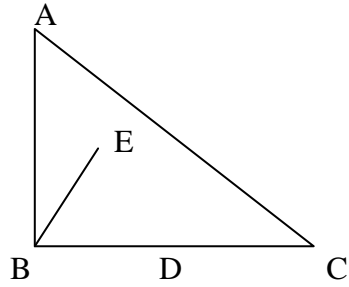
28. In a quadrilateral ABCD, AB=BC and CD=DA then what type of quadrilateral ABCD is ?

29. In the adjoining fig, if DE // BC, then find BD

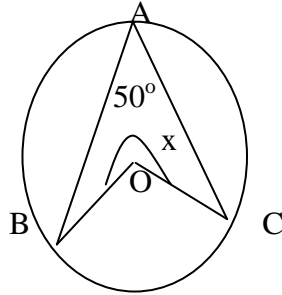


30. The figure obtained by joining the mid points of the sides of a rhombus, taken in order is

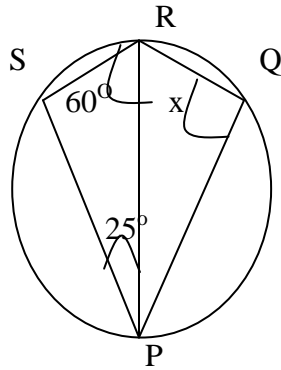
31. In $\triangle ABC$, AD is median of a $\triangle ABC$ and BE is median of $\triangle ABD$. If ar ($\triangle ABE$) = 15cm² then find ar ($\triangle ABC$)



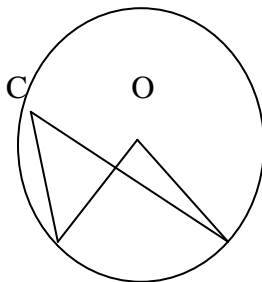
32. Find x in the adjoining fig. O is the centre of the circle.

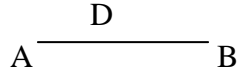


33. In the below PQRS is cyclic quadrilateral. If $\angle SPR = 25^\circ$ and $\angle PRS = 60^\circ$, then find value of x .

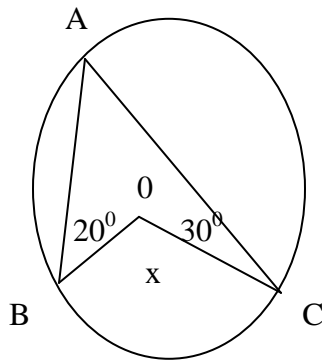


34. $\angle ADB = 90^\circ$ and $\angle ABC = 30^\circ$ then find $\angle CAO$

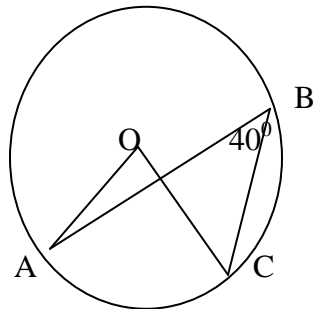




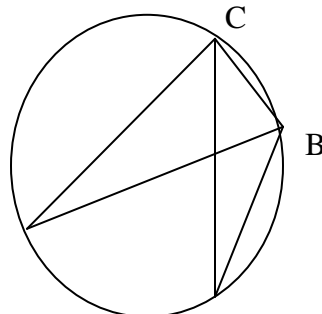
35. In the given fig 'O' is the centre of the circle $\angle ABO = 20^\circ$ and $\angle ACO = 30^\circ$ where A,B,C are points on the circle. Find the value of x



36. In fig , O is the centre of the circles and $\angle ABC = 40^\circ$ then find $\angle AOC$



37. In the fig In the fig AB is a diameter. $\angle BDC = 35^\circ$, then find $\angle ABC$



A

D

38. If ABC is an arc of a circle and $\angle ABC = 60^\circ$ then the ratio of arc to the circumference is

39. Number of circles passing through three non-collinear points is

MENSURATION

40. Curved surface area of a hemisphere with radius 7 cm is.....

41. If the total surface area of a cube is 54cm^2 then its lateral surface area is

42. If in a right circular cylinder, radius is doubles and height is halved, then the curved surface area will be

43. The total surface area of solid hemisphere is 462 cm^2 . Find its diameter.

44. In a cylinder, if radius is halved and height is double, the curved surface area will be

45. The radius of a sphere is numerically equal to its surface area then find its diameter.

46. Find curved surface area of a right circular cone whose slant height is 10cm and base diameter is 14cm.

47. The total surface area of an open cuboidal box of dimensions $l \times b \times h$ is

48. Curved surface area of hemisphere of diameter $2r$ is

49. If volume and surface area of a cylinder are numerically equal, then radius of its base is
50. If the radius of a sphere is doubled, then its volume is increased by how much percent.
51. The total surface area of a cube is 96 cm^2 then find its volume.
52. If the heights of two cones are in the ratio 1:4 and the radius of their bases are in the ratio 4:1 then find the ratio of their volumes.
53. Find the total surface area of a cone whose radius is $\frac{r}{2}$ and slant height is $2l$.
54. If the diameter of a solid cone of radius r is the same as its height, then find the volume of the cone.
55. If the area of a base of right circular cylinder is 54 cm^2 and its height is 10 cm then find its volume
56. In a cylinder, if radius is halved and height is doubled then its volume will be
57. Find the volume of cone of radius $\frac{r}{2}$ and height $2h$.
58. If radius of a sphere is $\frac{2d}{3}$ then its volume is

Or

A match box measures $6 \text{ cm} \times 2 \text{ cm} \times 1.5 \text{ cm}$, then find volume of a packet containing five such boxes.

Or

If $A, B,$ and C denote the areas of three adjacent faces of a cuboid, then find its volume.

(Statistics and Probability)

59. Class mark of a class interval 15-25 is
60. The ages (in year) of 10 children are given below:
15,15,16,16,15,14,17,16,14,16. The modal age of the children is
61. The mean of $x+1, x+3, x+4, x+8$ is
62. Find the mean of first 10 natural numbers.

63. The mean of first 5 prime numbers is
64. Median of 78,56,22,34,45,54,39,84,54 is
65. Median of 12,11,7,6,10,17,9,15,13, is
66. Find the mode of the following marks obtained by 20 students :
4,6,5,9,3,9,7,7,6,5,4,9,10,10,3,4,7,6,9,9
67. The relation between mean, median and mode is
68. For what value of x, is the mode of the following data 17,
15,16,17,14,17,16,13,x,17,16,15,15
69. In the throw of a die in a game of snakes and ladder, what is the probability of getting an even number.
70. A Coin is tossed 10 times with the frequencies head =4, tail =6, the probability of no head is
71. Reena dialed a phone number 100 times in a week out of which she gets the response 55 times. Find the probability that she will not get the response.
72. An experiment has two outcomes E and F then $P(E) + P(F)$ is equal to
73. What is the range of probability of an event given by $P(E)$
74. Out of 35 students participating in a debate 10 are girls. Find the probability that winner is a boy.
75. A dice is thrown once, a number is noted, then what is the probability that it is a prime.
76. In year 2009, during rainy season of 90 days it was observed that it rained 20 days only. Then what is the probability that it did not rain.
77. The minimum probability of an event is
78. One card is drawn from a well shuffled deck of 52 cards. Find the probability that the card drawn is an ace.

Or

A card is drawn from a well shuffled pack of 52 cards. Find the probability that the card drawn is red card.

Or

A bag contains 6 blue and 4 green marbles. If a marble is drawn at random from the bag, find the probability that the marble drawn is green.

Or

Two coins are tossed simultaneously 1000 times and we get.

Two heads :200 times, one head : 600 times,

No head : 200 times

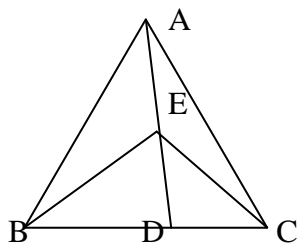
Find the probability of getting at most one head.

[2 Mark Questions]

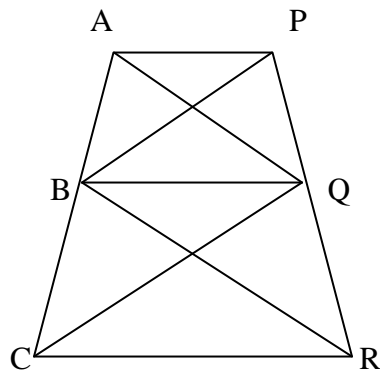
79. Find the coordinates of the point where the line $y=5x+7$ cuts the y-axis
80. The taxi fare in a town is **Rs.** 10 for the first kilometer and **Rs.** 6 per Km for the subsequent distance taking the distance as 'x' km and total fare as **y** write a linear equation for this information, what will be the total fare for 15 km?
81. Draw the graph of $x+2y=6$ and from the graph ,find the value of x when $y= -6$
82. Give the equation of two lines passing through (2,14). How many more such lines are there and why?
83. If the points A (3,) and B (1,4) lie on the graph of the line $ax+by=7$ find the values of a and b

[Quadrilateral & Area]

84. Two opposite angles of a parallelogram are $(3x-2)$ and $(50-x)$. Find the measure of each angle of the parallelogram.
85. Diagonals AC and BD of a trapezium ABCD with $AB//DC$ intersect each other at O. Prove that $\text{ar}(\Delta AOD) = \text{ar}(\Delta BOC)$
86. In fig. ABC is a triangle. E is the mid-point of median AD. Show that $\text{ar}(BED)=\text{ar}(ABC)/4$

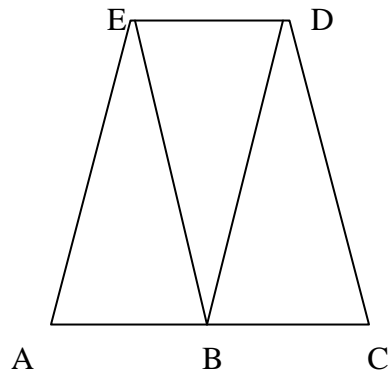


87. In fig. $AP \parallel BQ \parallel CR$ Prove that $\text{ar}(\triangle AQC) = \text{ar}(\triangle PBR)$



88. Show that median divides a triangle into two triangles of equal areas.

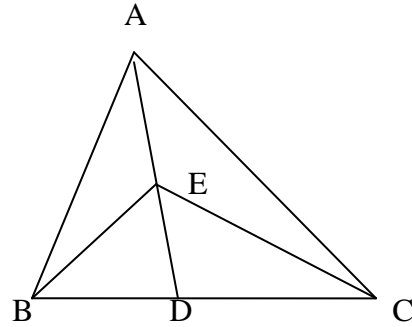
89. In figure, ABDE and BCDE are two parallelogram show that $\text{ar}(\triangle BDE) = \frac{1}{3} \text{ar}(\text{quad ACDE})$



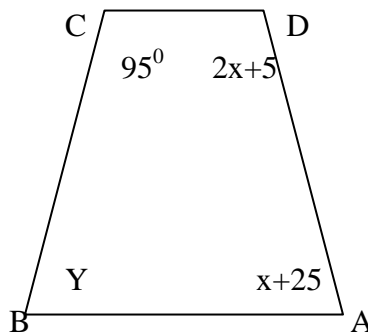
90. The angles of a quadrilateral are in the ratio 3:5:9:13. Find all the angles of the quadrilateral

91. Prove that the sum of the four angles of a quadrilateral is 360° .

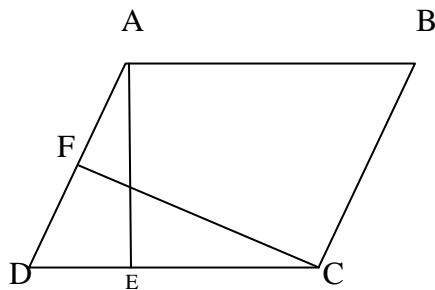
92. In the given figure, E is any point on median AD of a $\triangle ABC$. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACE)$



93. Show that each angle of a rectangle is a right angle.
 94. If diagonals of a parallelogram are equal, show that it is a rectangle.
 95. In the given figure, ABCD is a trapezium in which $\angle A = (x+25)^\circ$, $\angle B = y$, $\angle C = 95^\circ$ and $\angle D = 2x+5^\circ$, then find the values of x and y

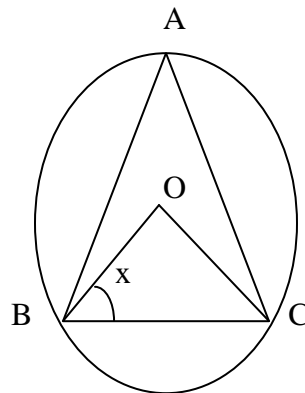


96. If one angle of a // gm is 24° less than twice the smallest angle, find all angles of the // gm
 97. Two adjacent angles of a //gm are in the ratio 5:4. Find all angles of the parallelogram.
 100 In the given figure, ABCD is a parallelogram, AE ⊥ DC and CF ⊥ AD. If AB=16 cm, AE=8cm and CF=10cm, find AD.

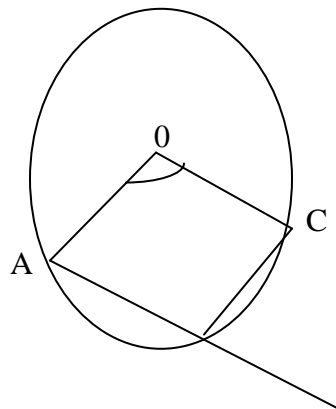


(Circles)

101 In figure, a circle with centre O is drawn and $\angle BAC = 50^\circ$. Find x



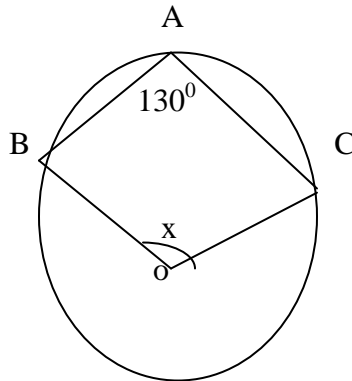
102 In the fig : $\angle AOC = 110^\circ$. Find $\angle CBD$ where AB is produced to D



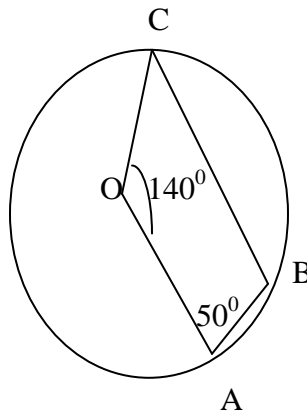
B

/D

- 103 Draw a line segment $AB=6\text{cm}$ and draw its perpendicular bisector.
- 104 A Chord of a circle is equal to its radius find the angle
- 105 Prove that equal chords subtend equal angles at the centre.
- 106 Find the length of the chord which is at a distance of 3 cm from the centre of a circle whose radius is 5 cm.
- 107 Prove that if chords of congruent circles subtend equal angles at their centers, then the chords are equal.
- 108 If O is the centre of the circle and $\angle BAC=130^\circ$, then find x



- 109 In the figure points A, B, C lie on a circle with centre O If $\angle AOC = 140^\circ$ and $\angle OAB=50^\circ$ Find $\angle OCB$



110 In figure, if $\angle ADC = 128^\circ$ and $\angle DBC = 32^\circ$ find $\angle DCB$

Or

PQRS is a cyclic quadrilateral, in which $\angle P = 2x^\circ$, $\angle Q = y^\circ$, $\angle R = 3x^\circ$. and $\angle S = 2y^\circ$, Find the values of x and y.

111 Find the volume of the largest right circular cone that can be placed in a cube of edge 14 cm.

112 The hollow sphere, in which the circus motorcyclist performs his stunts, has a diameter of 7m. Find the area available to the motorcycle for riding.

113 Two cylindrical cans have bases of the same size. The diameter of each is 14 cm. One of cans is 10cm high and other is 20 cm high. Find the ratio of their volumes

114 Three cubes each of volume 125 cm^3 are joined end to end to form a cuboid. Find the total surface area of cuboid.

115 Find the total surface area of a hemisphere of radius 3.5cm (Take $\frac{\pi}{7} = \frac{22}{7}$)

116 The circumference of the edge of a hemispherical bowl is 132 Cm. Find the capacity of the bowl.

117 Find the capacity in litres of a conical vessel whose base diameter is 14 cm and slant height is 25 cm.

118 Find the cost of digging a cuboidal pit 8m long, 6m broad, and 3m deep at the rate of **Rs.** 30 per m^3 .

119 Each side of a cube is increased by 50% by what percent the surface area of the cube increases?

120 Find the cost of white washing the four walls of a room with dimensions 5m x 4m x 3m at the rate of Rs.12/ m^2

[STATISTICS]

121 The class – marks of classes in a distribution are 6,10,14,18,22,26,30. Find

(a) Class size

(b) Lower limit of second class

(c) Upper limit of last class

(d) Third class

122 Prepare a frequency distribution table for the data given below :
0,1,3,1,3,0,2,1,0,2,1,1,1,2,1,2,2,2,3,0,3,1,1,2,3,2,2,0,1,0

123 Obtain the mean of the following data.

Variable (X_i)	4	6	8	10	12
Frequency (F_i)	4	8	14	11	3

124 The following observations have been arranged in ascending order. If the medium of the data is 63, find the value of x

29,32,48,50, x , $x+2$,72,78,84,95

125 The class marks of a frequency distribution are 104,114,124,134,144,154,164. Find the class size and class intervals.

126 Find the median of the following data: 2,12,32,17,26,39,42,12,18,32,15

127 If the mean of five observations is x , $x+2$, $x+4$, $x+6$, $x+8$ is 11. Find the mean of first three observations.

128 The mean of five numbers is 27 if one number is excluded, their mean is 25, Find the excluded number.

129 Find the median of the data 15,28,72,56,44,32,31,43 and 51. If 32 is replaced by 23. Find the new median.

130 The median of a data arranged in ascending order 9,14,15,20, $x+1$, $x+3$, 31,36,44,51 is 25. Find the value of $3x+3$

(Probability)

131 A die is rolled 300 times and following outcomes are recorded:

Outcome	1	2	3	4	5	6
Fre.	42	60	55	53	60	30

Find the probability of getting a number more than 4.

- 132 To know the opinion of the students about a subject survey of 200 students was conducted. The data is recorded as follows.

Opinion	Number of students
Like	135
Dislike	65

Find the probability that a student chosen at random i. likes the subject ii. Does not like it.

- 133 A bag contains 5 red 8 white, 4 green and 7 black balls. If one ball is drawn at random, find the probability that is (i) black (ii) not green
- 134 A coin is tossed 600 times. The outcomes are number of heads = 248, number of tails = 352. It is tossed once more find the probability of getting.
(i) A Tail (ii) A Head

- 135 Three coins are tossed simultaneously 200 times with the following frequencies of different outcomes

Out come	3 Heads	2 Heads	1 Head	No Head
Frequency	23	72	77	28

If the the three coins are simultaneously tossed again ,compute the probability of more than two heads.

- 136 In a cricket match 1 batswoman hits the boundary 16 times out of 40 balls she plays. Find the probability of her not hitting the boundary.
- 137 The percentage of marks obtained by a student in the monthly unit are given below –

Unit test	I	II	III	IV	V
% of marks obtained	76	52	60	95	43

- 138 A man speaks truth 4 out of 7 times. Find the probability of that he would narrate an incident
(i) Correctly (ii) Incorrectly

- 139 There are 10 balls in a bucket numbered 1,1,2,3,4,4,4,5,6,6. A Single ball is randomly picked. Find the probability of
- (i) Drawing a ball numbered 4
 - (ii) A ball with number less than 4

- 140 1000 families with 2 children were selected randomly and the following data were recorded

Number of boys in family	0	1	2
Number of families	140	560	300

If a family is chosen at random. Find the probability

- (i) No boy
- (ii) at least one boy

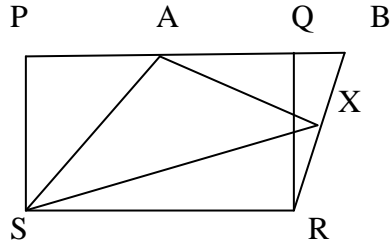
[3 Mark Questions]

- 141 Mark two points A (-2,0), B(2,0) in the Cartesian plane graph. Name the equation passing through A and B. Does origin lies on this line?
- 142 Solve the equation $3x+5 = 2x+3$ and represent the solution on the number line and Cartesian plane.
- 143 Compare the equation $\frac{x}{3} + \frac{3}{2}y + 4 = 2y-3$ and $lx + my - n = 0$ and write the value of l,m and n
- 144 By means of graph, verify that $x=2, y=2$, is a solution of the equation $2x-y=2$
- 145 Express the following statement as a linear eqⁿ in two variables by taking present ages (in years) of father and son as x and y respectively. Age of father 5 years ago was two years more than 7 times the age his son at that time.
- 146 Find two linear equations in two variables whose graphs pass through (2,14). How many such equations are possible?
- 147 Given a point (2,3) form an equation of a line on which it lies. How many such equations are possible?

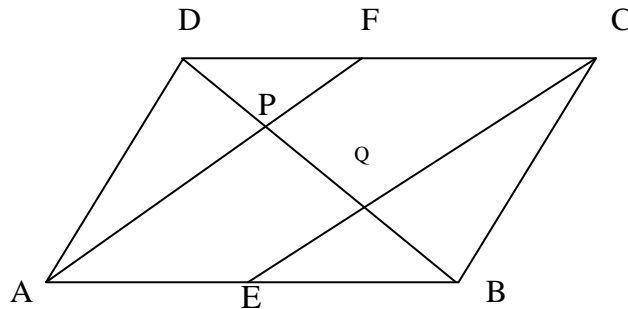
- 148 For what value of a and b, the points (2,3) and (4,0) lie on the graph of the equation $ax+by = 7$?
- 149 If the point (3,5) lies on the graph of eqn $2y=px-2$, find p. Also find two more solutions for the given equation.
- 150 Find the value of K, if $x=2, y=1$ is a solution of the equation $2x +3y = K$. Hence find two more solutions of the equation.
- 151 Draw the graphs of $y=x$ and $y=-x$ in the same axes. Also, find the coordinates of the point where the two lines intersect.
- 152 Draw the graph of the linear equation $y=\frac{2}{3}x + \frac{1}{3}$. Check from the graph that (7,5) is a solution of the linear equation.
- 153 Draw the graph of $y=3$ as an equation in two variables what does the graph represent?
- 154 Write the equation $2x=y$ in the form $ax+by+c=0$ and find values of a,b,c in the equation. How many solutions this equation has?
- 155 Using graph, verify that point (2,6) lies on the graph of $3x-2y+6 = 0$
- 156 Draw the graph of $3x+2y-1 = 0$. Check from the graph whether the points (1,-1) and (-1,1) lie on the graph or not.
- 157 Find the coordinates of the points where the line representing the equation $\frac{x}{4} =1-\frac{y}{6}$ cuts the x-axis and the y-axis.
- 158 If (3,1) is a solution of the equation $3x-2y=k$, find the value of K. Find two more solution for the equation.
- 159 Express y in terms of x in the equation $2x-3y=12$. Draw the graph of the above linear equation. Find the point where the line cuts x-axis and y-axis.
- 160 The auto fares in a city are as follows. For the first Km, the fare is **Rs.12** and the subsequent distance is **Rs 7** per Km.Taking the distance covered as x Km and the total fare as **Rs.y**, write a linear equation and draw its graph

(Quadrilateral & Area)

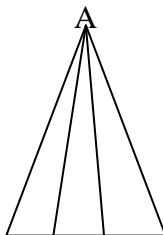
- 161 In the given figure, PQRS and ABRS are //gms and x is any point on side BR.
 Show that -
 (i) $\text{ar}(\text{PQRS}) = \text{ar}(\text{ABRS})$
 (ii) $\text{ar}(\text{AXS}) = \frac{1}{2} \text{ar}(\text{PQRS})$



- 162 The diagonals of a parallelogram divide it into two congruent triangles. Prove.
- 163 E is the mid – point of the side AD of a trapezium ABCD with $AB \parallel DC$. A line through E drawn parallel to AB intersects BC at F. Show that F is the mid-point of BC.
- 164 ABCD is a quadrilateral in which P,Q, R and S are mid-points of the sides AB,BC,CD and DA respectively. Show that PQRS is a parallelogram.
- 165 If a line is drawn parallel to the base of an isosceles triangle to intersect its equal sides, Prove that the quadrilateral so formed is cyclic.
- 166 In the figure, ABCD is a parallelogram. E and F are the mid- points of sides AB and CD respectively show that the line segments AF and EC trisect the diagonal BD.

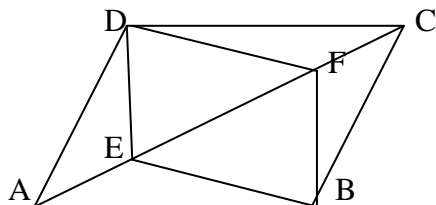


- 167 In the figure $BD = DE = EC$
 Prove that $\text{ar}(\triangle ABD) = \frac{1}{2} \text{ar}(\triangle ADC)$

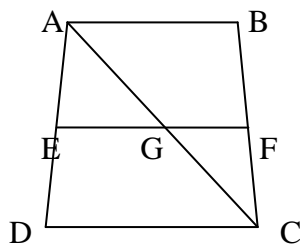


B D E C

- 168 If the diagonals of a //gm are equal and intersect at right angles, then show that //gm is a square.
- 169 Prove that the line segment joining the mid-points of the hypotenuse of a right triangle to its opposite vertex is half of the hypotenuse.
- 170 ABCD is a quadrilateral such that $AB=CD$, diagonals AC and BD intersect at O. Such that $OA=OC$. AL and CM are perpendiculars drawn from A and C on BD. Show that (a) $\text{ar}(\triangle OAB) = \text{ar}(\triangle OCD)$
- 171 Diagonals AC of Parallelogram ABCD bisect $\angle A$ show that:
(i) It bisects $\angle C$ also.
(ii) ABCD is a rhombus
- 172 If the non-parallel sides of trapezium are equal, prove that sum of each pair of opposite angles is supplementary.
- 173 P is a point in the interior of a parallelogram ABCD. Show that $\text{ar}(\triangle APB) + \text{ar}(\triangle PCD) = \frac{1}{2}\text{ar}(\text{ABCD})$
- 174 Prove that the diagonals of a parallelogram bisect each other.
- 175 In quadrilateral ABCD, $\angle B=90^\circ$, $\angle C-\angle D=60^\circ$ and $\angle A-\angle C-\angle D=10^\circ$. Find $\angle A, \angle C$ and $\angle D$
- 176 Show that the diagonals of a rhombus are perpendicular to each other.
- 177 E and F are points on the diagonal AC of a parallelogram ABCD such that $AE=CF$. Show that DFBE is a parallelogram.



- 178 In a parallelogram ABCD, prove that sum of any two consecutive angles is 180° .
- 179 Prove that a parallelogram and a rectangle on the same base and between the same parallels are equal in area.
- 180 In the figure ABCD is a trapezium in which side AB is parallel to side DC and E is the mid-point of side AD. If F is a point on the side BC such that the segment EF is parallel to side DC. Prove that F is the mid-point of BC and $EF = \frac{1}{2}(AB+DC)$



[Surface Area and Volume]

- 181 What length of canvas 3m wide will be required to make a conical tent of height 8m and radius of base 6m ? (use $\pi = 3.14$)
- area decreased.
- 183 How many spherical bullet can be made out of a solid cube of lead, whose edge measures 44 cm, each bullet being 4 cm in diameter.
- 184 A Sphere and a cube have the same surface area show that the ratio of the volume of the sphere to that of the cube is : $\sqrt{6} : \sqrt{\pi}$
- 185 The radius of a spherical balloon increases from 7 cm to 14 cm as air being pumped into it. Find the ratio of surface areas of the balloon in two cases.
- 186 A hemispherical bowl is 0.25 Cm thick. The inner radius of bowl is 5 Cm, find the outer curved surface area and volume of the bowl (keep volume in)
- 187 How many litres of milk can be put in six hemispherical bowls each of radius 35 Cm.

- 188 A hemispherical dome of a building needs to be painted. If the circumference of the base of the dome is 17.6m, find the cost of painting it, if the cost of painting is **Rs.5** per 100 cm² [Take $\pi = \frac{22}{7}$]
- 189 The internal and external diameter of a hollow hemisphere vessel are 24cm and 25 cm respectively. The cost to paint 1 sq cm of surface isRs. 1.75. Find the total cost to the nearest rupee to paint the vessel all over. Ignore the area of the edge (Take $\pi = 3.14$)
- 190 A rectangular piece of paper is 22 cm long and 12 cm wide. A cylinder is formed by rolling the paper along its length. Find the volume of the cylinder. ($\pi = \frac{22}{7}$)
- 191 A hollow cylindrical pipe is 210 cm long. Its outer and inner diameter are 10 cm and 6 cm respectively. Find the volume of the copper used in making the pipe.
- 192 Find the volume of a sphere whose surface area is 55.44 cm² ($\pi = \frac{22}{7}$)
- 193 The radius and vertical height of a cone are 5 cm and 12 cm respectively. Find the curved surface area.
- 194 A cube of largest volume is cut from a sphere of radius $4\sqrt{3}cm$. Find the volume of the cube ($\pi = \frac{22}{7}$)
- 195 A right triangle PQR with sides 3 cm,4cm and 5cm is revolved about the side of length 4 cm. Find the volume of the shape so generated (use $\pi = 3.14$)
- 196 The paint in a certain container is sufficient to paint an area equal to 9.375 m². How many bricks of dimensions 22.5 cm x 10cm x 7.5 cm can be painted out of this container?
- 197 The slant height and base diameter of a conical tomb are 25 m and 14m respectively. Find the cost of white washing its curved surface at the rate of **Rs.210** per 100 m².
Use ($\pi = \frac{22}{7}$)
- 198 A short put is a metallic sphere of radius 4.9 cm. If the density of the metal is 7.5g per cm³, find the mass of the short-put.
- 199 Radhika has the frame of a lampshade in the form of a cylinder. The frame has a base diameter of 20 cm and height of 30cm. She wants to cover it with a decorative cloth. A margin of 2.5 cm is to be given for folding it over the top and bottom of the frame. Find how much cloth is required for covering the lampshade.

200 A village having a population of 2000 required 150 liters of water per head per day. It has a tank measuring 20m x 15m x 6m. For how many days will be water of this tank last?

(Constructions)

201 Construct an angle of 15° using scale and compass only.

202 Construct angle 75° using ruler and compass only.

203 Draw a triangle ABC in which BC=4cm, AB=3cm and $\angle B=37.5^{\circ}$

204 Construct an angle of 105° , using ruler and compass only.

205 Construct an angle of 45° using compass and ruler only.

206 Construct a ΔPQR with base PQ=4.2 cm $\angle P=45^{\circ}$ and PR-QR = 1.4cm

207 Construct a ΔABC with BC=5.5cm, $\angle B=60^{\circ}$ AB+AC = 8cm.

208 Construct a triangle ABC with base AB=5cm, $\angle A=30^{\circ}$ and AC-BC=2.5 Cm

209 Construct a ΔABC , in which BC=3.8cm, $\angle B=45^{\circ}$ and AB+AC=6.8cm.

210 Construct a right triangle whose base is 12cm and sum of its hypotenuse and other side is 18cm.

[Statistics]

211 Find the value of x any y in the following distribution if it is know that the mean of the distribution is 1.46

No of accident	0	1	2	3	4	5	Total
Frequency	46	X	Y	25	10	5	200

212 The mean weight of 60 students of a class is 52.75 kg. If the mean weight of 25 students of this class is 51kg, find the mean weight of the remaining 35 students of the class.

213 Find the mean for the data

X_i	10	15	20	25	30
F_i	4	6	3	2	5

- 214 100 surnames were randomly picked up from a telephone directly and frequency distribution of the number of letters in the English alphabet in the surnames was found to be as follows –

Numbers of Letters	Number of Surnames
2-4	6
4-6	30
6-8	44
8-12	16
12-14	4

Draw a histogram to depict the given information.

- 215 Find the missing frequency 'K' from the following data:

X_i	5	10	15	20	25
F_i	2	8	K	10	5

If it is given that mean is 16

- 216 Given below is the number of seats won by different political parties in an election.

Political party	A	B	C	D	E	F
Number of seats won	75	52	35	42	30	47

Draw a bar graph to represent the above data.

- 217 Construct a frequency polygon for the following data.

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	10	13	9	6	2

- 219 If the mean of the following observations is 18 then find out the value of the disappeared frequency P

X	10	15	20	25
F	5	10	P	8

- 220 Draw histogram for the following data :

Class interval	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	6	8	12	7	5	4

- 221 The population of four major cities in India in a particular year is given below:

City	Mumbai	Kolkata	Delhi	Chennai
No of Students	120	130	150	80

Draw bar graph

- 222 The time taken in seconds, to solve a problem by each of 25 pupils is as follows :
16,20,26,27,28,30,33,37,38,40,42,43,46,46,46,48,49,50,53,58,59,60,64,52,20
Construct a frequency distribution for these data, using a class interval of 10 seconds.
- 223 Find the value of P, if the mean of the following distribution is 20.

X	15	17	19	20+P	23
F	2	3	4	5P	6

- 224 Find the median of the following observations:
46,64,87,41,58,77,35,90,55,92,33. If 92 is replaced by 99 and 41 by 43 in the above data find the new median?
- 225 30 children were asked about the number of hour they watched TV programs in the previous week. The results were found as follows.
1,6,2,3,5,,12,5,8,4,8,10,3,4,12,2,8,15,1,17,6,3,2,8,5,9,6,8,7,14,12
- a) Make a frequency distribution, taking class width 5
b) How many children watched TV for 15 or more hours a week.

(Probability)

226 Three coins are tossed 1000 times and the outcomes are recorded as below :

No of Heads	3	2	1	0
Frequency	200	285	312	203

Find the probability of ,two heads ,not more than one head,more than two heads

227 In a survey of 500 families, number of vehicles owned per family were found to be as follows.

No of vehicles owned	0	1	2	3	4
No of families	35	213	170	65	17

Find the probability ,no vehicle, 2 or 3 vehicles, more than 1 vehicle

228 The weekly pocket expenses of students are given below. Find the probability that the weekly pocket expenses of a student are.

- i) **Rs.59**
- ii) More than **Rs 59**
- iii) Less than **Rs 59**

Pocket expenses (In Rs.)	45	40	59	71	58	63	65
No of students	7	4	10	6	3	8	1

229 A die is thrown 1000 times with the following frequencies for the outcome 1,2,3,4,5, and 6 as given below :

Outcome	1	2	3	4	5	6
Frequency	175	125	250	150	100	200

Find the probability of getting 2,4 and 6

230 A die is rolled 25 times and outcomes are recorded as under

Outcomes	1	2	3	4	5	6
Frequency	9	4	5	6	1	0

It is thrown one more time find the probability of getting

- a) An even number
- b) A multiple of 3
- c) A Prime number

231 Cards marked with numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box. Find the probability that the number on the card is :

- a) a number less than 14
- b) a number which is a perfect square
- c) a prime number less than 20

232 Two coins are tossed simultaneously 500 times and following observations were noted.

Two heads 105	One Head 275	No head 120
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Find the probability of occurrence of events

- i) Two heads
- ii) One head
- iii) No head

233 The ages of workers in a factory are given in the following table :

Age (In years)	21-23	23-25	25-27	27-29	29-31	31-33	33-35
No of workers	3	4	5	6	5	4	3

Find the probability that the age of workers selected at random is at least 25 years.

234 To know the opinion of the students about mathematics, a survey of 200 students was conducted. The data is recorded in the following table.

Opinion	Like	Dislike
No of students	135	65

Find the probability that a student chosen at random

- i) Likes mathematics
- ii) Does not like it.

- 235 Eleven bags of wheat flour, each marked 5 kg actually contained the following weights of flour (in Kg) :

4.97,5.05,5.08,5.03,5.00,5.06,5.08,4.98,5.04,5.07,5.00

Find the probability that any of these bags chosen at random contains more than 5 kg of flour.

- 236 In a cricket match, a batsman hits a boundary 6 times out of 30 balls he plays. Find the probability that on a ball played:

- i) he hits boundary
- ii) he does not hit a boundary

- 237 1500 families with 2 children were selected randomly and the following data were recorded.

No of girls in a family : 0 1 2
 No of families : 211 814 475

If a family is chosen at random, compute the probability that it has :

- i) At most one girl ii) 2 girls

- 238 The percentage of marks obtained by a student the monthly unit test are given

Unit test : I II III IV V
 % of marks obtained : 58 74 76 62 85

- i) At least 60% marks
- ii) Marks between 70% and 80%

- 239 The record of a weather station shows that out of the past 250 consecutive days, its weather forecast were correct 175 times. What is the probability that on a given day

(i) it was correct ? (ii) it was not correct?

240 In a mathematics test given to 15 students, the following marks (out of 100) are recorded:
41,39,48,52,46,62,54,40,96,52,98,40,42,52,60
Find the mean, median and mode of this data.

[4 Mark Questions]

241 Draw the graph of the equations $2x+3y=5$ and $x-2y=13$ on the same axes. Find the coordinates of the point where their graphs intersect each other.

242 Draw the graph of the equation $5x-4y+20=0$. Find the points where the line represented by the equation cuts x-axis and y-axis

243 If the point (4,3) lies on the graph of the linear equation $3x-ay=6$, then find value of a, also find whether (-2,6) also lies on the same graph? Draw graph of this equation.

244 For the linear equation $3x-5y-15=0$, find the points where its graph intersects x and y-axis using these draw the graph of the equation.

245 The auto rickshaw fare in a city is charged **Rs.**10 for the first Km and **Rs.**4 pr Km for subsequent distance covered. Write the graph of this equation and find the fare for the distance of 6m, using the graph.

246 Here is a linear equation that converts Fahrenheit temperature to Celsius temperature. $F = (\frac{9}{5})C + 32$

i) If the temp is 30°C , what is the temp in Fahrenheit

ii) If the temp is 95°F , what is the temp in Celsius draw its graph also.

247 Find the value of 'm' If $x=2,y=1$ is a solution of the equation $2x+3y=m$ and represent it graphically.

248 Give th geometric representation of $2x+9=0$ as an equation in two variables. Give two solutions of the equation from the graph.

249 Work done by a body on application of a constant force is directly proportional to the distance travelled by the body. Express this in the form of an equation in two variables. Draw the graph of the equation taking in two variables. Draw the graph of the equation in two variables. Draw the graph of the equation taking force as 5 units. Find from the graph the work done when the distance travelled by the body is 2 units.

- 250 Taxi fare in a city is **Rs. 8.00** for first Km and for the subsequent distance it is **Rs. 5.00** per Km. Write an equation to represent this information in two variables taking distance covered as 'x' Km and total fare as y (In Rs.). Find the distance travelled by a person if he spent **Rs. 63.00** represent this information graphically.
- 251 Draw graphs of $3x-2y=1$ and $2x+y=-4$ and write the coordinates of the point where the graphs intersect.
- 252 Give the geometric representation of $2x+8=0$ as an equation
 i) In one variable
 ii) In two variables.
- 253 Solve the equation $3(x+2) = 2(2x-1)$ and represent the solution on
 i) the number line
 ii) the Cartesian plane.
- 254 Yamini and Fathima, two students of class IX together contributed **Rs. 100** towards the prime minister's relief fund to help the earthquake victims. Write a linear equation which satisfies this information. Draw the graph of the same by taking their contributions as 'x' and 'y'.
- 255 Sketch the graph of the equation $y=2x-4$. Shade the region enclosed by the line and the two axes.
- 256 A man is driving his car with a uniform speed of 90km/hr. Draw the time-distance graph from the graph find the distance travelled by him in $2\frac{1}{2}$ Hrs.
- 257 Draw the graphs of line $x+y=6$ and $2x+3y=16$ on the same graph. Also the co-ordinates of the point where two lines intersect.
- 258 The monthly hostel charges for a student comprises of **Rs. 1000 P.M.** as fixed boarding charges and remaining charges at the rate of **Rs 50** per day (for the no for which the food has been availed by a students)
- a) Form a linear eqⁿ in two variables to represent above situation
 b) What are the monthly charges to be paid by a student who availed meals for 21 days in a given month?

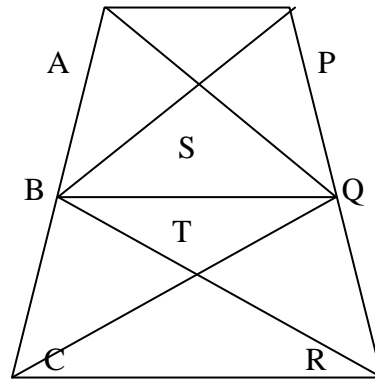
- 259 If (2,3) and (4,0) lie on the graph of equation $ax+by=1$. Find value of a and b. Plot the graph of equation obtained.
- 260 Draw the graph of the linear equation $3x+4y=6$ At what points, the graph cuts the x-axis and the y-axis.
- 261 Draw the graph of two lines, whose equations are $3x-2y+6=0$ and $x+2y-6=0$ on the same graph paper. Find the area of triangle formed by the two lines and x-axis.

[Quadrilaterals and Area]

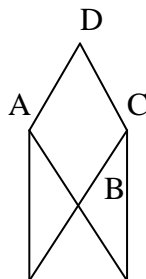
- 262 P,Q,R and S are mid-points of the sides AB, BC, CD and DA respectively of the parallelogram ABCD. Show that PQRS is a parallelogram ABCD show that PQRS is a parallelogram whose area is half of the parallelogram ABCD.
- 263 Prove that the quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic.
- 264 The diagonals of a parallelogram ABCD intersect at a point O. Through O a line is drawn to intersect AD at P and BC at Q. show that PQ divides the parallelogram into two parts of equal areas.

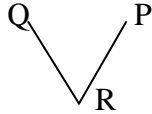
- 265 In the given fig $AP \parallel BQ \parallel CR$ prove that

- i) $ar(PSQ) = ar(ASB)$
 ii) $ar(BTC) = ar(QTR)$



- 266 In the figure, side AB of parallelogram ABCD is produced to any point P. $AQ \parallel CP$ meets CB produced at Q and PBQR is a parallelogram. Prove that $ar(ABCD) = ar(PBQR)$





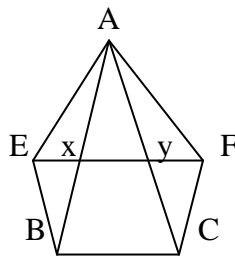
- 267 In a parallelogram PQRS, If $\angle QRS = 2x$, $\angle PQS = 4x$ and $\angle PSQ = 3x$, find the angles of the parallelogram.
- 268 ABCD is trapezium in which $AB \parallel CD$ and $AD = BC$ show that :
 i) $\angle A = \angle B$ ii) $\angle C = \angle D$
 iii) $\triangle ABC$ congruent $\triangle BAD$
- 269 D, E, F are respectively the mid points of the sides BC, CA and AB of a triangle ABC. Show that:
 i) BDEF is a parallelogram
 ii) DFEC is a parallelogram
- 270 Show that the quadrilateral formed by joining the mid points of adjacent sides of a rectangle is a rhombus.
- 271 Show that the line segments joining the mid points of the opposite sides of a quadrilateral bisect each other.
- 272 ABCD is a rhombus and PQRS are the mid points of the sides AB, CD, and DA respectively show that the quadrilateral PQRS is a rectangle.
- 273 ABC is a triangle; right angled at C A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that
 i) D is the mid – point of AC
 ii) $MD \perp AC$
 iii) $CM = MA = \frac{1}{2} AB$
- 274 ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on the diagonal BD. Show that $AP = CQ$
- 275 Two parallel lines l and m are intersected by a transversal P. Show that the quadrilateral formed by the bisectors of interior angles is a rectangle.
- 276 Prove that in a triangle, the line segment joining the mid-points of any two sides is parallel to third side and is half of it.

277 P is midpoint of side BC of a parallelogram ABCD, such that $\angle BAP = \angle DAP$. Prove that $AD = 2 CD$.

278 Show that the bisectors of angles of a parallelogram form a rectangle.

279 Prove that the parallelograms on the same base and between same parallels are equal in area.

280 In the given figure, XY is a line parallel to side BC of $\triangle ABC$. $BE \parallel AC$ and $CF \parallel AB$ meets XY at E and F respectively. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACF)$

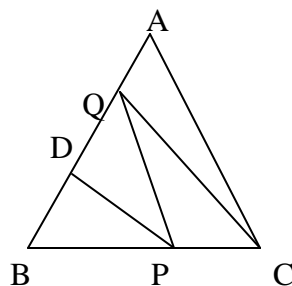


281 In a triangle ABC, E is the mid-point on median AD. Show that $\text{ar}(\triangle BED) = \frac{1}{4} \text{ar}(\triangle ABC)$

282 Prove that two triangles on the same base and between the same parallel lines are equal in area.

283 Show that the diagonals of a parallelogram divide it into four triangles of equal area.

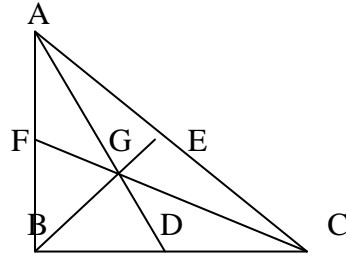
284 In figure, ABC is a triangle, D is the mid-point of AB, P is any point on BC. Line CQ is drawn parallel to PD to intersect AB at Q. PQ is joined. Show that $\text{ar}(\triangle BPQ) = \frac{1}{2} \text{ar}(\triangle ABC)$



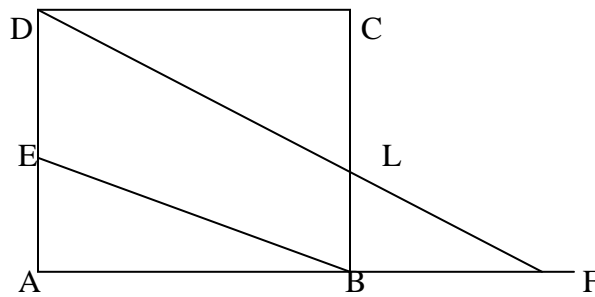
285 Prove that any cyclic parallelogram is a rectangle.

286 If the medians of a triangle ABC intersect at G, show that

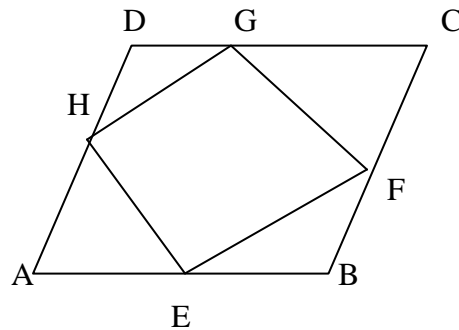
$$\text{ar}(\triangle AGB) = \text{ar}(\triangle AGC) = \text{ar}(\triangle BGC) = \frac{1}{3} \text{ar}(\triangle ABC)$$



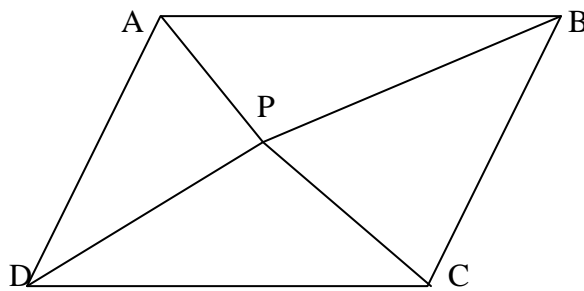
- 287 In the given figure, ABCD is a parallelogram in which E is the mid-point of AD. DF EB, meeting AB produced in F and BC at L. Prove that $DF = 2DL$



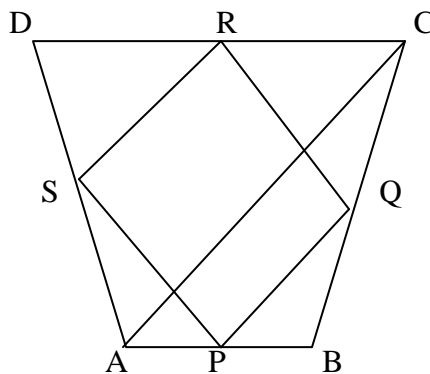
- 288 If E, F, G and H are respectively the mid-points of the sides of a parallelogram ABCD, show that $\text{ar}(EFGH) = \frac{1}{2} \text{ar}(ABCD)$



- 289 In the given figure, P is a point in the interior of a parallelogram ABCD, show that
 $Ar(\Delta APB) + ar(\Delta PCD) = \frac{1}{2} ar(\text{gm ABCD})$



- 290 ABCD is a quadrilateral in which P, Q, R and S are the mid – points of sides AB,BC,CD, and DA respectively. AC is a diagonal show that



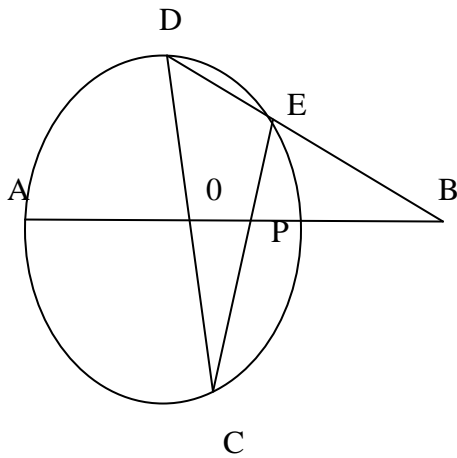
- i) $SR \parallel AC$ and $SR = \frac{1}{2} AC$
- ii) $PQ = SR$
- iii) PQRS is a parallelogram

(Circles)

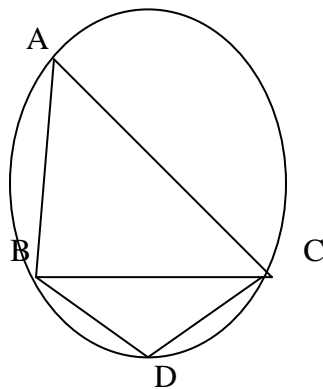
291 Prove that the angle subtended by an arc of the circle at the centre is double the angle subtended by it any other point on the remaining part of the circle.

292 Prove that equal chords of a circle subtend equal angles at the centre of circle.

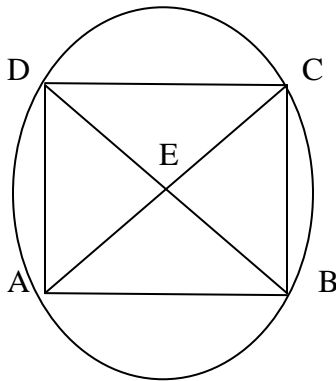
293 In the figure straight lines AB and CD pass through the centre O of the circles. If $\angle OCE = 40^\circ$ and $\angle AOD = 75^\circ$ find $\angle CDE$ and $\angle OBE$



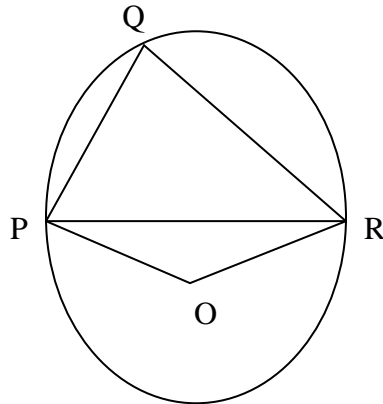
294 In the figure $BD = DC$ and $\angle DBC = 25^\circ$. Find the measure of $\angle BAC$.



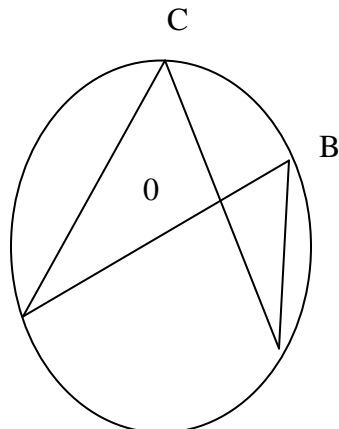
- 295 ABCD is a cycle quadrilateral whose diagonals intersect at a point E. If $\angle DBC = 70^\circ$, $\angle BAC = 30^\circ$ find $\angle BCD$. Further, if $AB = C$, find $\angle ECD$.



- 296 In the figure, $\angle PQR = 100^\circ$, where P, Q, and R are points on circle with centre O, Find $\angle OPR$.

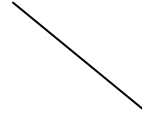


- 297 In the figure, O is the centre of the circle. $BD = OD$ and $CD \perp AB$. Find $\angle CAB$.



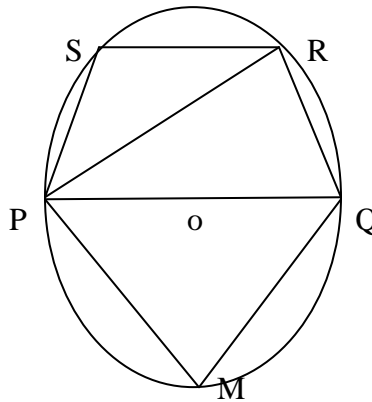
A

D



298 Prove that the opposite angles of a cycle quadrilateral are supplementary.

299 In the given figure, PQ is the diameter of the circle with centre O. If $\angle PQR = 65^\circ$, $\angle RPS = 40^\circ$ and $\angle PQM = 50^\circ$, find $\angle QPR$, $\angle PRS$ and $\angle QPM$.



[Constructions]

300 Construct a $\triangle ABC$ in which $BC = 5\text{cm}$, $\angle B = 30^\circ$ and $AC - AB = 2\text{ cm}$

301 Construct a $\triangle PQR$ in which $QR = 6\text{ cm}$, $\angle Q = 60^\circ$ and $PQ + PR = 10\text{cm}$

302 Construct a triangle ABC in which $BC = 8\text{cm}$, $\angle B = 45^\circ$ and $AB - AC = 3.5\text{cm}$

303 Construct a $\triangle ABC$ in which $BC = 7.5\text{cm}$, $\angle B = 45^\circ$ and $AB - AC = 4\text{ cm}$

304 Construct a triangle XYZ , in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11\text{cm}$

- 305 Construct a triangle PQR in which $QR=7\text{cm}$, $\angle Q=45^\circ$ and $PQ-PR=4\text{cm}$
- 306 Construct a triangle ABC whose perimeter is 12cm , $\angle B=60^\circ$ and $\angle C=45^\circ$. Measure the sides of the triangle.
- 307 Construct a right triangle where base is of length
- 308 Construction a ABC in which $\angle C=45^\circ$, $\angle B=60^\circ$ and $AB+BC+AC = 18 \text{ cm}$
- 309 Construct a ABC with $\angle A=75^\circ$, $\angle B=30^\circ$ and $AB=5.6 \text{ cm}$. Measure $\angle C$

[Surface Area and Volumes]

- 310 A storage tank is in the form of a cube. When it is full of water the volume of water is 15.625 m^3 . If the present depth of water is 1.5m , Find the volume of water already used from the tank.
- 311 A semi – circle sheet of metal of diameter 28cm is bent to form an open conical cup. Find the capacity of the cup.
- 312 The radius and height of a cylinder are in the ratio $5:7$ and its volume is 550 cm^3 . Find the radius and height.
- 313 Monica has a piece of canvas whose area is 818 m^2 she used it to have a conical tent made, with a base radius of 10m . Assuming that all the stitching margins and the wastage incurred while cutting amounts to approximately 1.6m^2 , find the volume of the tent that can be made with it.
- 314 The volume of right circular cone is 9856 cm^3 . If the diameter of its base is 28 cm then find
- (i) Height of cone
 - (ii) Slant height of cone
 - (ii) Curved surface area of cone.
- 315 The floor of a rectangular hall has perimeter 250m . If the cost of painting the four walls at the rate of **RS.** 10 per m^2 is **RS.** $15,000$. Find the height of the hall.
- 316 Ajay has built a cubical water tank in his house. The top of the water tank is covered with lid. He wants to cover the inner surface of the tank including the lid with square tiles of

- side 25cm. If each inner edge of the water tank is 2m long and tiles cost **Rs.360** per dozen, then find the total amount required for tiles.
- 317 A cube and a cuboid have the same volume. The dimensions of the cuboid are in the ration 1:2:4. If the difference between the cost of painting the cuboid and cube (whole surface area) at the rate of **Rs. 5/m²** is **RS.80**. Find their volumes.
- 318 The diameter of a metallic ball is 4.2 cm. What is the mass of the ball, if the density of the metal is 8.9 g per cm³ ?
- 319 Twenty seven solid iron spheres, each of radius r and surface area s are melted to form a sphere with surface area s¹. Find the
- (i) Radius r¹ of the new sphere
 - (ii) Ratio of s and s¹
- 320 The volume of sphere is 38808 m³. Find its surface area.
- 321 A powder tin has square base with side 8 cm and height 13 cm. Another powder tin is cylinder with base radius 7 cm and height 15cm. Which of two contains more powder ? Also find the difference of their capacities.
- 322 Madhu has a piece of canvas, whose are is 550m², He uses it to have a conical tent made, with a base radius of 7m. Assuming the stitching wastage is negligible. Find the volume of the tent that can be made with the canvas.
- 323 A lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled in the interiors. The radius of the cylindrical wood is 3.5 mm and the radius of the graphite is 0.5mm. If the length of the pencil is 14cm, find the volume of the wood (in cm³)
[use $\pi = \frac{22}{7}$]
- 324 Rain water which falls on a flat rectangular surface of length 6m and breadth 4m is transferred into a cylindrical vessel of internal radius 20cm. What will be the height of water in the cylindrical vessel if the rain fall is 1cm. Give your answer to the nearest whole number [use $\pi=3.14$]

- 325 A small indoor green house is made entirely of glass panes (including base) held together with tape. It is 30cm long, 25cm wide and 25cm high. What is the area of the glass? How much tape is required for all the 12 edges.
- 326 A hemispherical dome of a building needs to be painted. If the area of the base is 24.64m², find the cost of painting it, given the cost of painting is **Rs.5** per 100cm². [Use $\pi = \frac{22}{7}$]
- 327 A Wall of length 10m was to be built across an open ground. The height of the wall is 4m and thickness of the wall is 24cm. If this wall is to be built up with bricks whose dimensions are 24cm x 12 cm x 8cm, how many bricks would be required?
- 328 A metal sheet 27cm long, 8cm broad and 1cm thick is melted into a cube. Find the difference between surface areas of two solids.
- 329 The circumference of the base of a 16 m high solid cone is 33m. Find the surface area of the cone [Use $\pi = \frac{22}{7}$]

(Statistics)

- 330 Draw a frequency polygon of the following data

Marks	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No of students	11	7	9	20	22	2	3

- 331 Draw a histogram to represent the data.

Marks	0-20	20-60	60-80	80-100
No of students	5	20	16	8

- (i) How many students got marks more than or equal to 60?
 (ii) How many students got marks less than 20?

332 If mean of seven observations (taken in ascending order) 28, 32, x, x+2, x+5, 43, 45 is 38 find x and hence median.

333 In a city, the following weekly observations were made in a study on cost of living index.

Cost of living index	120-130	130-140	140-150	150-160	160-170	170-180
No of weeks	8	12	4	16	8	4

Draw a histogram and frequency polygon for above data.

334 Find the difference of mean and mode of the following data.

X	20	25	32	40	50	100
Y	5	4	10	2	1	3

335 Draw a histogram and frequency polygon of the following data.

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No of students	5	12	6	20	18	10	16	3

336 The daily earning of 30 works are given below :

Daily earning In Rupees)	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400
No of workers	3	7	4	5	4	3	2	2

- 337 The distribution of weekly wages of 140 casual laborers in a factory is given below.
Draw a frequency polygon for the data.

Weekly wages	210-230	230-250	250-270	270-290	290-310	310-330	330-350
No of Laborers	4	7	5	9	5	6	4

- 338 Draw a histogram and frequency polygon for the following data:

CT	0-50	50-100	100-150	150-200	200-250	250-300
Frequency	12	18	27	20	17	6

- 339 Draw the histogram for the following data representing marks of students of a class in an examination.

Marks Obtained	0-10	10-20	20-30	30-50	50-80	80-90	90-100	100-120
No of students	5	10	4	16	12	7	9	2

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