

SAMPLE PAPER – 2009
CLASS – IX
SUBJECT – MATHEMATICS

SECTION-A

- 1) Express 1.324 in the form p/q . (49/37)
- 2) If $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a+b\sqrt{7}$. Find a and b . (0.-2/3)
- 3) Find the remainder when $4x^3-3x^2+2x-4$ is divided by $x+1/2$. (-25/4)
- 4) Factorise: $5x^2+16x+3$ $((x+3)(5x+1))$
- 5) Is (2,1) a solution of $2x+5y=9$? Why?
- 6) An angle is 16° more than its complement. What is its measure? (53)
- 7) 2 lines AB & CD intersect at O. If one angle is 35° find all the other angles. (35,145,145)
- 8) A semicircular sheet of metal of diameter 28cm is bent into an open conical cup. Find the depth and capacity of the cup. (12.12cm, 622.16cc)
- 9) Find the arithmetic mean of first 10 natural numbers. (5.5)
- 10) 2 coins are tossed simultaneously. Find the probability of getting one or more tail. (3/4)

SECTION-B

- 11) Factorise: x^3-3x^2-9x-5 $(x+1)^2(x-5)$
- 12) In a parallelogram if a diagonal bisects one angle prove that it also bisects the opposite angle.
- 13) Given a circle with centre O and PQ is a diameter. PQ is extended to R and ST is a chord which is extended to meet at R. Join QT and OT. $\angle POT=140^\circ$, $\angle SPO=45^\circ$. Find $\angle RTQ$ and $\angle RQT$. (45,160)
- 14) A rectangular sheet of paper 44cm x 18cm is rolled along its length and a cylinder is formed. Find volume of the cylinder. (2772cc)
- 15) Find the combined mean of a group of 150, if the mean of 50 students is 40 and that of the other 100 students is 50. (46.7)

SECTION-C

16) Simplify: a) $(x+y+z)^2 + (x+y-z)^2$ b) $(2x+3p)^3 + (2x-3p)^3$
 $(2x^2+2y^2+2z^2+4xy)$ $(16x^3+108xp^2)$

17) Find the value of $27x^3+8y^3$ if $3x+2y=14$ and $xy=8$ (728)

18) Plot the following points on a graph paper. (2,4), (-5,3), (-1,-3), (2,0), (0,4), (5,-1).

19) Find the value of k if line represented by the equation $2x-ky=9$ passes through (-1,-1) (11)

20) ABCDE is a regular pentagon. Find each angle of $\triangle BDE$.
 (36, 72, 72)

21) Show that in a right \triangle hypotenuse is the largest side.

22) Prove that the figure formed by joining the midpoints of the pairs of consecutive sides of a quadrilateral is a parallelogram.

23) Two chords AB and CD of length 5cm and 11cm respectively of a circle are parallel. If the distance between AB and CD is 3cm find radius of the circle.
 $(\sqrt{(146)/2})$

24) A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 26cm, 28cm, 30cm and the parallelogram stands on the base

28cm find the height of the parallelogram. (12cm)

25) A solid cylinder has a total surface area 462sq.cm. Its CSA is $1/3$ TSA. Find its volume. (539 cc)

SECTION-D

26) Draw a histogram and frequency polygon of the following.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No: of students	3	5	8	10	7	2

27) A right triangle ABC with sides 5cm, 12cm, 13cm is revolved about the side 12cm. Find the volume of the solid so obtained. If the triangle is revolved about Side 5cm find volume of the solid so obtained. Find also the ratio of volumes.
 (314cc, 240π cc, 5:12)

28) Draw the graph of $2x+5y=13$. Find the points where the line meets the 2 axes.

29) ABC is a triangle in which $AB=AC$. P is a point in the interior of the triangle such that $\angle ACP = \angle ABP$. Prove that AP bisects $\angle BAC$.

30) Construct a triangle ABC whose perimeter is 12cm, $\angle B=60^\circ$, $\angle C=45^\circ$