Class- IX
Subject – Mathematics

Time : 3hrs mm 80

Section A (one marks)

1 Find five rational number between 3/5 and 4/5 .
2 Locate
QUOTE
on number line
3 Find the zero of the x+5
4. Find the remainder when x3-ax2+6x-a is divided by x-a
5. In which quadrant points (-2, 4) and (3,-1) lie?
6. Find the value of k, if x=2, y=1 is a solution of the equation 2x+3y =k
7. Define point, line, surface and plane surface
8. If a point C lies between two pints A and B such that AC =BC, then prove that AC=1/2 AB. Explain with drawing
9. Write the formula for Vol. of Cone, and Total surface area of solid sphere
10. The probability of an event lies between -------- and --------
1x10

Section B (two marks)

11. Three coins are tossed simultaneously 200 times with the following frequencies of different outcomes:

Outcome	Frequency
3 heads	23
2heads	72
1 heads	77
no head	28

if the three coins are simultaneously tossed again , compute the probability of 2 heads coming up.

12. Find the mean ., median and mode of the scores in 10 matches.(2,3,4,0,1,3,3,4,3,5)
13. Show that sum of the angles of a triangle is 1800
14. Rationalize the denominator
QUOTE

15. Verify that x3+y3+z3-3xyz = ½ (x+y+z)[(x-y)2+(y-z)2+(z-x)2]
2x5

Section c (3 marks)

16. Draw on graph paper x+2y = 6

17. In Fig. the side of QR of
PQR is produced to a point S. If the bisectors of □PQR and □PRS meet at point T , prove that □QRT= 1/2 □QPR

18. Two sides AB and BC and median AM of one triangle ABC are respectively equal to sides PQ and QR And median PN of

18. Two sides AB and BC and median AM of one triangle ABC are respectively equal to sides PQ and QR And median PN of ΔPQR. Show that:

ΔABM□ ΔPQN

ΔABC□ΔPQR

19. In an Isosceles triangle ABC with AB=AC, D and E are points on BC Such that BE=CD .Show that AD=AE

20. ABCD is a rhombus and P,Q,R AND S are the midpoints of the sides AB ,BC, CD and DA respectively , Show that the Quadrilateral PQRS is a rectangle.

21. ABCD is a trapezium with AB || DC. A line parallel to AC intersects AB at X and BC at Y . Prove that ar (ADX)=ar(ACY).

22. Construct a triangle whose □Y =300 and □=900 and XY+YZ+ZX =11cm.

23. The capacity of a clo□ □ □ □
osed cylindrical vessel of height 1m is 15.4litres. How many square meters of metal sheet would be needed to make it?

24. A shot- putt is metallic spheres of a radius 4.9cm if the density of the metal is 7.8per cm3; find the mass of the shot-putt.

25. The following observations have been arranged in ascending order .If the median of the data is 63, find the value of x . 29, 32, 48, 50, x, x+2, 72,78,84,95
3x10

Section D (6 marks)

26. Two circles intersect at two points B and C. Through B
xofo]of]oSoSo
, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively (See fig.). Prove that ÒفCP =Ò□ QCD

27. ABCD is a quadrilateral and BE|| AC and also BE meets DC produced at E. Show that area of
, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively (See fig.). Prove that ےACP =ے QCD

27. ABCD is a quadrilateral and BE|| AC and also BE meets DC produced at

E. Show that area of ∆ ADE is equal to the area of the quadrilateral ABCD

28. If E, F, G, H are respectively the mid points of the sides of a parallelogram ABCD, show that ar(EFGH) = ½ (ABCD).

29 .Find the area of a triangle using hero

28. If E, F, G, H are respectively the mid points of the sides of a parallelogram ABCD, show that ar(EFGH) = ½ (ABCD).

29 .Find the area of a triangle using hero's formula if ∠ B =900

30. [a] Twenty seven solid iron s
pheres , each of radius r and surface area S are melted to from a sphere with surface area S' Find the (i) radius r' of the new sphere, (ii) ratio of S and S'

[b] A right triangle ABC with side 5cm, 12cm and 13cm is revolved about the side 12cm; find the volume of the solid so formed.