SAMPLE PAPER-2010
CLASS - IX
SUBJECT: MATHEMATICS

Time: 3 Hours   M. M.: 80

General Instructions

- QNO. 1 to QNO 12 are MCQ type (QNO. 1-8 carry 1 mark each and 9-12 carry 2 marks each)
- QNO 13 to QNO 19 carry 2 marks each.
- QNO 20 to QNO 29 carry 3 marks each.
- QNO 30 to QNO 34 carry 4 marks each.

(SECTION-A)

1. How many rational numbers are there between any two given rational numbers?
   a) 1   b) 2   c) Infinitely many   d) None of these

2. The degree of a non-zero constant polynomial is
   a) 1   b) 0   c) 16   d) -1

3. Amongst a linear pair of angles, if one angle is 30^0 then the other angle is
   a) 30^0 b) 50^0 c) 150^0 d) 100^0

4. In a Δ ABC if AC is the longer side, then
   a) $\angle$B is the greater angle.   b) $\angle$C is the greater angle.
   c) $\angle$B is the smaller angle.   d) $\angle$A is the greater angle.

5. In a parallelogram
   a) All the sides are equal   b) All the angles are equal
   c) The diagonals are equal   d) Opposite sides are equal.

6. A median of a triangle divides it into
   a) Two right triangles   b) Two triangles of equal areas.
   c) Two congruent triangles   d) Two equilateral triangles.

7. 1 Kiloliter=………………
   a) 10 m^3 b) 100m^3 c) 1m^3 d) 1000m^3

8. The arithmetic mean of first ten even natural numbers is
   a) 8   b) 9   c) 10   d) 11

9. In the given figure if, m $\angle$AOB=80^0 then m $\angle$ACB=…………
   a) 80^0 b)20^0 c)40^0 d)100^0

10. D, E and F are respectively the midpoints of sides BC, AC and AB of Δ ABC. Then ar (Δ DEF) =
    a) $\frac{1}{2}$ ar(ΔABC)   b)$\frac{1}{3}$ ar(ΔABC)   c)$\frac{1}{4}$ ar(ΔABC)   d) 4 ar(ΔABC)

11. The volume of a sphere whose diameter is 14 cm is
    a) $1437 \frac{1}{3} \text{cm}^3$ b) $1437 \frac{2}{3} \text{cm}^3$ c) 1537 cm^3 d) 1537 cm^3

12. In a mathematics test of 15 students the following marks are recorded
41, 39, 48, 52, 46, 62, 54, 40, 96, 52, 98, 40, 42, 52, 60. The mode of this data is
a) 52   b) 42   c) 40   d) 60

(SECTION – B)

13. Find three different irrational numbers between $\frac{1}{7}$ and $\frac{2}{7}$.

14. Find the remainder when $x^4 - 3x^3 + 2x^2 + x + 1$ is divided by x.

15. Without actually calculating the cubes, find the value of $(-12)^3 + (7)^3 + (5)^3$.

16. Find the value of p if the median of following observations is 48
14, 17, 33, 35, p-5, p+7, 57, 63, 69, 80
The above observations are in ascending order.

17. Find the surface area of a cuboid if its length, breadth and height are respectively 10cm, 8cm and 5cm.

18. In the given figure, ABCD is a parallelogram, AE $\perp$ CD and CF $\perp$ AD. If AB=16cm, AE=8cm and CF=10cm, find AD.
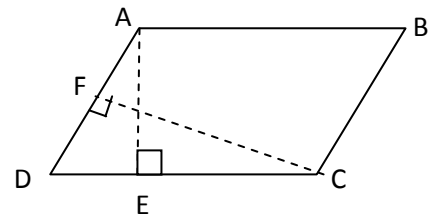
19. The angles of a quadrilateral ABCD are $(3x-10^0)$, $(x+30^0)$, $(2x+30^0)$ and $(2x-10^0)$ respectively. Show that ABCD is a parallelogram.

(SECTION-C)

20. Show $\sqrt{8}$ on a number line.

21. Factorise $6x^2+17x+10$ by using Remainder Theorem.

22. In the given figure find the values of x and y.
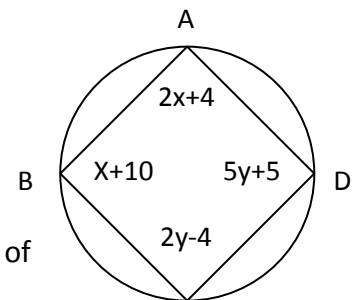
23. Show that the quadrilateral obtained by joining the midpoints of the square is also a square.

24. In the given figure PR>PQ and PS bisects $\angle$QPR. Prove that $\angle$PSR > $\angle$PSQ.
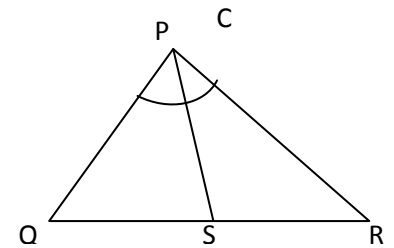
25. The diameter and slant height of a cone are in the ratio 8:7
Find its slant height, if its curved surface area is 3186m².

26. In Δ ABC; $\frac{\angle A}{3} = \frac{\angle B}{4} = \frac{\angle C}{2}$ find the measures of $\angle A$, $\angle B$ and $\angle C$.

27. Find the mean

| x	10	20	30	40	50
f	8	16	12	14	10

28. Prove that in a parallelogram opposite sides are equal.

29. Find in liters how much water flows through a cylindrical pipe of diameter 6cm in one minute, if the speed of the water through the pipe 14 km/hour.

(SECTION-D)

30. Factorise $x^3+13x^2+32x+20$ by using Factor Theorem.

31. A hollow spherical shell has external diameter 15cm and is made of 1cm thick iron sheet. Taking $\pi=3.14$, find:

   i) Volume of iron in the spherical shell.

   ii) Mass of the spherical shell, if density of its substance is 7.8 gram per cm^3.

32. State and prove mid-point theorem.

33. Prove that there is one and only one circle passing through three given non-collinear points.

34. The sides AB and AC of a ΔABC are produced to P and Q respectively. The bisectors of $\angle$PBC and $\angle$QCB intersect at point O. Prove that $\angle$BOC $= 90^0 -- \frac{1}{2} \angle$BAC.
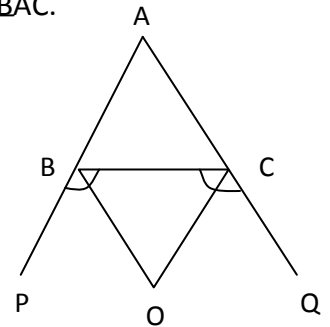
Prepared by:
Jitendra Nayak
TGT, Mathematics
JNV, Deogarh, Orissa
Cell No.09439212523