Ashwani Gupta

Class – IX || Mathematics

GENERAL INSTRUCTIONS:

1. *All questions are compulsory.*
2. *The question paper consists of thirty four questions divided into four sections A, B, C & D. Section A comprises of ten questions of 01 marks each, Section B comprises of eight questions of 02 marks each, Section C comprises of ten questions of 03 marks each and section D comprises of six questions of 04 marks each.*
3. *All questions in section A are multiple choice questions where you are to select one correct option out of given four.*
4. *There is no overall choice. However internal choice has been provided in one question of 02 marks each, three questions of 03 marks each and two questions of 04 mark each. You have to attempt only one of the alternatives in all such questions.*
5. *Use of calculators is not permitted.*

Section – 'A'

1. Which of the following is a solution of the equation 3x+4y=10:
   - (a) x=2 , y=1
   - (b) x=-2, y=-1
   - (c) x=1, y=2
   - (d) x=-1,y=-2

2. ABCD is a rectangle with ∠BAC=32°, Determine ∠DBC:
   - (a) 69°
   - (b) 68°
   - (c) 32°
   - (d) 64°

3. ABCD is a parallelogram , AE⊥DC & CE⊥AD, if AB=16cm, AE=8cm & CF=10cm, then AD is:
   - (a) 1.28cm
   - (b) 128cm
   - (c) 12.8cm
   - (d) 13cm

4. ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle through A,B,C,D. If ∠ADC=130°, then ∠BAC is:
   - (a) 40°
   - (b) 60°
   - (c) 30°
   - (d) 70°

5. The circumference of a base 16m high solid cone is 33m, then the radius of the base in meter is:
   - (a) 5.25
   - (b) 5.275
   - (c) 52.7
   - (d) 52.5

6. What is the chance that a non leap year should have 53 Mondays:
   - (a) $\frac{1}{7}$
   - (b) $\frac{2}{7}$
   - (c) $\frac{0}{7}$
   - (d) none of these

7. The median of a triangle divides triangle in equal area of:
   - (a) 2 triangles
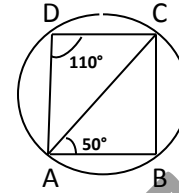   - (b) 4 triangles
   - (c) 3 triangles
   - (d) none of these

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8. ABCD is a cyclic quadrilateral in which
   BC is parallel to AD ∠ADC=110° & ∠BAC=50°
   then ∠DAC is:
   (a) 60°   (b) 40°
   (c) 70°   (d) 110°

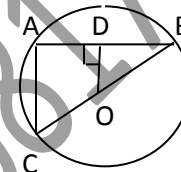9. Choose the correct solution of equation x-y=12:
   (a) (4,3)   (b) (0,-12)
   (c) (12,12)   (d) $\overline{24}, \overline{-12}$

10. If BC is the diameter of the circle of centre O
    and OD is the perpendicular to the chord AB of a circle, then

    (a) $\frac{1}{2}CA = OD$ (b) 2CA=OD
    (c) CA=OD   (D) none of these

Section – 'B'

11. If $(-3, 4)$ is a solution of the equation $3x - 4y = b$, find b.
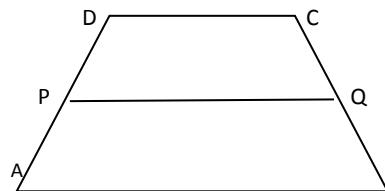
12. Prove that the opposite angles of a //gm are equal

13. In a trapezium ABCD

    DC II AB. P & Q are the mid points

    of AD & BC respectively.

    prove that, if PQ II DC II AB, then

    $PQ = \frac{1}{2}(AB + CD).$

14. If diagonals of a cyclic quadrilateral are diameters of the circle through the vertices of the quadrilateral, prove

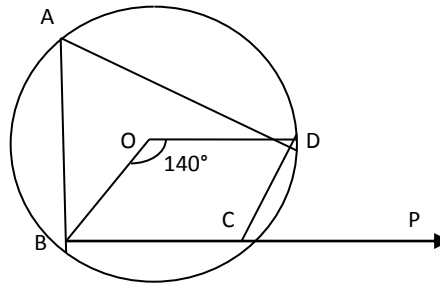   that it is a rectangle.

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15. In fig:

O is the center of the circle.

The angle subtended by the arc

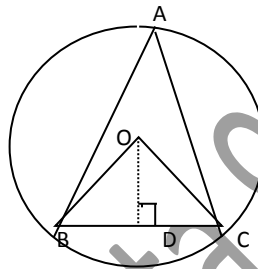BCD at the center is 140°.

BC is produced to P. Determine ∟A & ∟DCF.

OR

If O is the circumcenter

of ΔABC & OD I BC,

prove that ∟BOD=∟A.

16. The surface area of a cuboid is 1372cm^2. If its dimensions are in the ratio of 4:2:1, find them.

17. The cost of preparing the walls of a room 12cm long at the rate of Rs1.35 /m^2 is Rs340.20 & the cost of matting the floor at Rs 0.80/m^2 is Rs91.80. find the height of the room.

18. Find the median of first 12 prime numbers.

Section – 'C'

19. If twice the son's age in yrs. Is added to the age of his father, the sum is 90.Write its linear equation & draws its graph.

20. In a cyclic quadrilateral if one angle is thrice of its opposite angle. Write its linear equation & draw its graph.

21. ABCD is a //gm. AB is produced to E so that BE=AB. Prove that ED bisects BC.

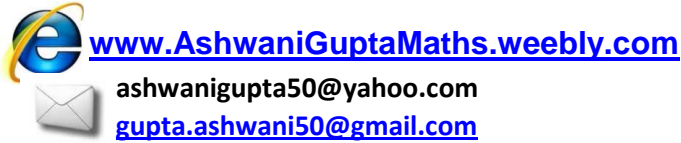Or

In a Δ the line segment joining the mid-points of any two sides is parallel to the third side & is half of it.

22. Construct a ΔPQR in with its perimeter 10.4 cm and base angles of 45° & 60°.

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23. It costs Rs2200 to paint the inner curved surface of a cylindrical vessel 10m deep. If the cost of painting is at the rate of Rs20/m^2, find

(1) Inner curved surface area of the vessel.

(2) Radius of the base.

(3) Capacity of the vessel.

<div align="center">OR</div>

If the radius of the base of a right cylinder is halved, keeping the height same, find the ratio of volume of the reduced cylinder to that of the original cylinder.

24. A rectangular piece of paper is 22cm long & 12cm wide. A cylinder is formed by rolling the paper along its length. Find the volume of the cylinder.

25. Find the missing frequencies for the following distribution if the mean of the distribution is34:

X	10	20	30	40	50	60
F	4	f_1	8	f_2	3	4

<div align="center">**OR**</div>

The marks secured by 10 students are 68, 53, 93, 60, 80, 63, 58, 66, 73, 56, 62. Find the median marks.

26. D is the mid point of side BC of ΔABC & E is the mid point of BD. If O is the mid point of AE, then ar $(BOE) = \frac{1}{8}$ ar (ABC)

<div align="center">**OR**</div>
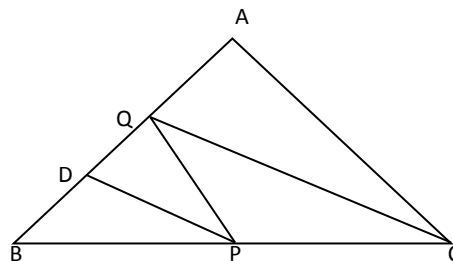
In fig: ABC is a Δ, D is the mid point of AB,

P is any point on BC. Line CQ is drawn $\parallel$ to PD to

Intersect AB at Q. PQ is joined. Show that:

ar $(BPQ) = \frac{1}{2}$ ar (ABC)

27. A box contains 40 balls of the same shape & weight. Among the balls 10 balls are white, 16 are red & rest is black. What is the probability that a ball drawn from the box is not black ball?

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28. In a beauty contest the following girls participated:

    (1) Lara Dutta   (4) Celina Jaitely

    (2) Priyanka Chopra   (5) Aishwarya Rai

    (3) Diya Mirza   (6) Sushmita Sen

What is the probability that

    (a) Lara Dutta   (c) Aishwarya Rai or Sushmita Sen

    (b) Diya Mirza   (d) not Celina Jaitely

Section – 'D'

29. A man sold a chair & a table together for $Rs.\,1250$ thereby making a profit of 25% on the chair & 10% on the table. Take the C.P. of one chair is $Rs.\,x$ & C.P. of 1 table is $Rs.\,y$. Write its linear equation & draw its graph.

                         OR

If 2 is subtracted from the fraction we get $-\frac{5}{2}$. Write its linear equation & draw its graph.

30. In a quadrilateral ABCD, the bisectors of $\angle A$ & $\angle D$ meet at E. Prove that $\angle B + \angle C = 2\angle AED$.

                         Or

Show that if the two diagonals of a ∥gm are equal then it is a rectangle.

31. A conical has the area of its base as 154m² & that of its curved surface area as 550m². Find the volume of the tent.

32. The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

33. The areas of a ∥gm ABCD & rectangle ABEF on the same base AB are equal. Prove that the perimeter of the ∥gm is > than that of the rectangle.

34. Find the value of 'a' if the mean of the following is 15:

X	5	10	15	20	25
f	6	a	6	10	5

Draw its frequency polygon also

M. C. Q. Answers:

1. a   6. b
2. b   7. c
3. c   8. a
4. a   9. b
5. a   10. a

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