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SUMMATIVE ASSESSMENT –II
MATHEMATICS
Class – IX

CBSE SAMPLE PAPER BY JEP

Time allowed: 3 hours | Maximum Marks: 90

General Instructions:

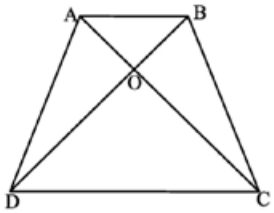
a) All questions are compulsory.
b) The question paper consists of 31 questions divided into five sections – A, B, C, D and E.
c) Section A contains 4 questions of 1 mark each which are multiple choice questions, Section B contains 6 questions of 2 marks each, Section C contains 8 questions of 3 marks each, Section D contains 10 questions of 4 marks each and Section E contains three OTBA questions of 3 mark, 3 mark and 4 mark.
d) Use of calculator is not permitted.

Section A

1. If $\frac{4}{x}+5y=7$ and $x=-\frac{4}{3}$, then the value of y is
   (a) $\frac{1}{3}$ (b) 2 (c) $\frac{37}{15}$ (d) $\frac{1}{2}$
2. The length of a diagonal of a rectangle is 10 cm. the area of its circumscribed circle is
   (a) 25 $\pi\ cm^2$ (b) 50 $\pi\ cm^2$ (c) 10 $\pi\ cm^2$ (d) 100 $\pi\ cm^2$
3. A cylindrical pillar is 7 m high. Its diameter is 12 cm. Find its volume?
   (a) π x 6 x 6 x 7 cm^3 (b) π x 12 x 12 x 700 cm^3
   (c) π x 6 x 6 x 700 cm^3 (d) π x 12 x 12 x 7 cm^3
4. In a class there are x boys and y girls, a student is selected at random, then the probability of selecting a boy is
   (a) x/y (b) $x/(x+y)$ (c) y/x (d) $y/(x+y)$

Section B

5. If $x=7+\sqrt{40}$, find the value of $\sqrt{x}+\frac{1}{\sqrt{x}}$
6. In the below figure, ABCD is a trapezium in which AB || CD prove that area of ΔAOD = area of ΔBOC



7. Prove that the quadrilateral formed (if possible) by the internal angle bisectors of any quadrilateral is cyclic.

Or

If the angles of a quadrilateral are in ratio 1: 2: 3: 4. Find measure of all the angles of quadrilateral.

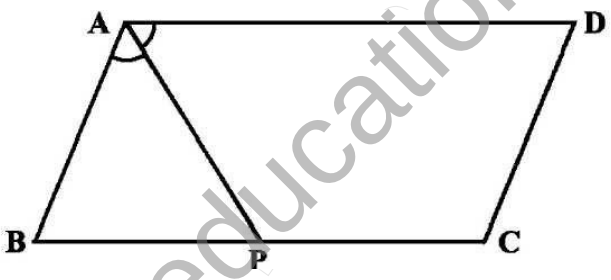
8. In triangle ABC, points M and N on sides AB and AC respectively are taken so that AM = $\frac{1}{4}$ AB and AN = $\frac{1}{4}$ AC. Prove that MN = $\frac{1}{4}$ BC.

9. A roller 150 cm long has a diameter of 70 cm. to level a playground it takes 750 complete revolutions. Determine the cost of leveling the playground at the rate of 75 paise per m^2.

10. Cards are marked with numbers 4, 5, 6... 100 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting (i) an even prime number (ii) a number divisible by 5 and (iii) multiple of 7? **Section C**

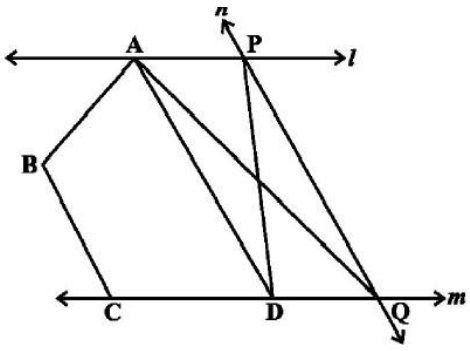
11. Express the linear equation $6=4x$ in the form $ax+by+c=0$ and indicate the value of a, b, c. also give the geometrical representation of above equation in two variables.

12. In the below figure P is the mid-point of side BC of a parallelogram ABCD such that $\angle BAP = \angle DAP$. Prove that AD = 2CD.



13. The diagonals of a quadrilateral ABCD are perpendicular. Show that the quadrilateral formed by joining the mid-points of its sides is a rectangle.

14. In the below figure *l*, *m*, *n* are straight lines such that *l* || *m* and *n* intersects *l* at P and *m* at Q. ABCD is a quadrilateral such that its vertex A is on *l*. the vertices C and D are on *m* and AD || n. show that ar(ABCQ) = ar(ABCDP).



Or

A triangle and a parallelogram have the same base and same areas. If the sides of the triangles are 40 cm, 24 cm and 32 cm and the parallelogram stands on the base 40 cm. find the height of the parallelogram.

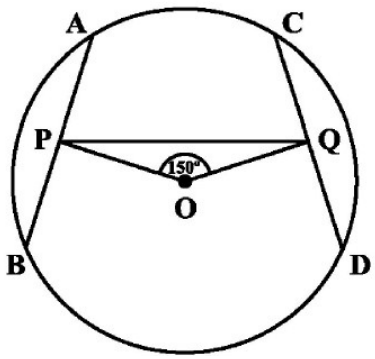
15. On a common hypotenuse AB, two right triangles ACB and ADB are situated on opposite sides. Prove that $\angle BAC = \angle BDC$.
16. In the adjoining figure you see the frame of a lampshade. It is to be covered with a decorative cloth. The frame has a base diameter of 20 cm and height of 30 cm. a 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.
17. The curved surface area of a cylinder pillarcial is 264 sq.m and its volume is 924 m^3. Find diameter of cylinder pillar.
18. Find the probability of a bag which actually contains more than 5 kg of wheat flour, out of the given bags 5.07, 4.97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.00 kg. **Section D**

19. The force exerted to pull a cart is directly proportional to the acceleration produced in the body. Express the statement as a linear equation of two variables and draw the graph of the same by taking the constant mass equal to 6 kg. Read from the graph, the force required when the acceleration produced is (i) 5 m/sec^2, (ii) 6 m/sec^2.

Or

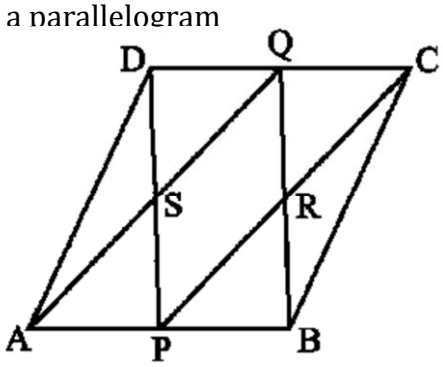
Draw the graph of the equation $3x - 4y = 12$. From the graph find the value of y, if x = 8

20. A sports academy has developed area of radius 105 m to import various sports culture and to train rural boys for Olympic purposes.
    (a) Calculate the area of academy.
    (b) What conclusion derived from the activity?
21. Prove that two triangles on the same base and between the same parallel lines are equal in area.
22. Construct the rhombus whose side is of length 3.4 cm and one of its angle is 45^0.
23. In the below diagram AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendicular on chords AB and CD respectively. If $\angle POQ = 150$, then find $\angle APQ$.



24. ΔABC And ΔADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = \angle CBD$.
25. A conical tent is 10 m high and the radius of its base is 24 m. Find (i) slant height of the tent. (ii) Cost of the canvas required to make the tent, I the cost of 1 m2 canvas is Rs. 70.

26. Let the vertex of an angle ABC be located outside a circle and let the sides of the angle intersect equal chords AD and CE with the circle. Prove that $\angle ABC$ is equal to half the difference of the angles subtended by the chords AC and DE at the centre.
27. In the below figure, ABCD is a parallelogram in which P and Q are mid-points of opposite sides AB and CD. If AQ intersects DP at S and BQ intersects CP at R, show that:
    (i) APCQ is a parallelogram
    (ii) DPBQ is a parallelogram
    (iii) PSQR is a parallelogram



28. The record of a weather station shows that out of the past 250 consecutive days, its weather forecasts were correct 1752 times. (i) what is the probability that on a given day it was correct?

    (ii) What is the probability that it was not correct on a given day?

Section E

29. OTBA Question for 3 marks from Statistics. Material will be supplied later.
30. OTBA Question for 3 marks from Statistics. Material will be supplied later.
31. OTBA Question for 4 marks from Statistics. Material will be supplied later.