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INDIAN SCHOOL SOHAR
PERIODIC TEST-II, 2017-18
MATHEMATICS

CLASS- IX **MAXIMUM MARKS: 80**
DATE: 26.09.17 **TIME: 3 Hours**

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- The question paper consists of **30** questions divided into 4 sections A,B,C,D.Section A comprises of **6** questions of **1 mark** each, section B comprises of **6** questions of **2 marks** each, section C comprises **10** questions of **3 marks** each and section D comprises of **8** questions of **4 marks** each **.**
- There is no overall choice in the question paper.
- Use of calculators not permitted.

SECTION A

1. Find the value of $(256)^{0.16} \times (256)^{0.09}$.
2. Find the coefficient of x^2 in $(3x^2-5)(4+4x^2)$.
3. Two angles measures (55^0+3a) and (115^0-2a). If each is supplement of the other, then calculate the value of a.
4. An exterior angle of a triangle is 80^0 and the interior opposite angles are in the ratio 1:3.Find measures of each interior opposite angles.
5. In a Δ ABC, if $\angle A=45^0$ and $\angle C=60^0$, then find the shortest side of the triangle.
6. In which quadrant does the point lie whose ordinate is 5 and abscissa is -3.

SECTION B

7. Using Heron's formula, find the area of an equilateral triangle with side 'b' unit.
8. Show that $x+3$ is a factor of $69+11x-x^2+x^3$.
9. Lines PQ and RS intersect each other at point O. If $\angle POR:\angle ROQ=5:7$, find all the remaining angles.
10. In an isosceles trapezium, the diagonals BD and AC are equal. Prove $\angle DAB = \angle CBA$.
11. Find the value of n if $(81)^{\frac{5}{n}} = 243$
12. If $\frac{\sqrt{2}-1}{\sqrt{2}+1} = a+b\sqrt{2}$ then find a and b.

PTO

SECTION C

13. If a+b+c=6, then find the value of $(2-a)^3+(2-b)^3+(2-c)^3-3(2-a)(2-b)(2-c)$

14. Express $3.42\overline{5}$ in the form of $\frac{p}{q}$.

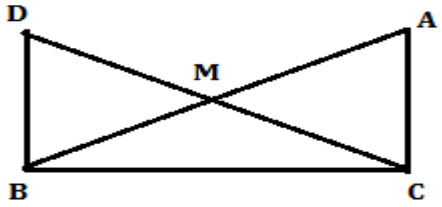
15. If $f(x)=x^2-5x+1$, evaluate $f(2)-f(-1)+ f(\frac{1}{3})$.

16. Using suitable identity, evaluate
    (i)103^3 (ii)101x102 (iii)999^2

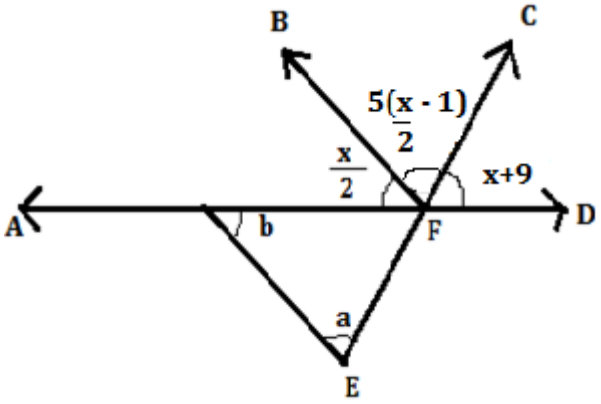
17. Locate $\sqrt{10}+2$ on the number line.

18. In a ΔABC, X and Y are the points on AB and BC such that BX=BY and AB=BC. Show that AX=CY.State the Euclid's Axiom used.

19. In a right triangle ACB, right angled at C, M is the midpoint of hypotenuse AB. C is joined to M and produced to a point D such that DM=CM. Point D is joined to point B.
    Show that:
    (i) ΔAMC≅ ΔBMD
    (ii) ∠DBC=90^0

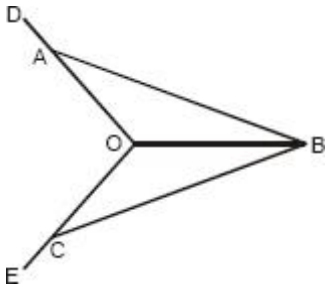


20. Find a +b



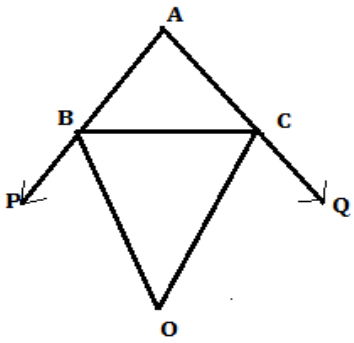
21. The side QR of Δ PQR is produced to a point S. If the bisectors of ∠PQR and ∠PRS meet at point T, then prove that ∠QTR= $\frac{1}{2}$∠ QPR

22. In the given figure, AB = BC and ∠ABO = ∠CBO, then prove that ∠DAB = ∠ECB.



Section D

23. Prove that:
$$\frac{1}{(\sqrt{4}+\sqrt{5})}+\frac{1}{(\sqrt{5}+\sqrt{6})}+\frac{1}{(\sqrt{6}+\sqrt{7})}+\frac{1}{(\sqrt{7}+\sqrt{8})}+\frac{1}{(\sqrt{8}+\sqrt{9})}=1$$
24. Factorize x^3-3x^2-9x-5
25. The polynomial ax^3+3x^2-3 and $2x^3-5x+a$ when divided by x-4 leave the same remainder in each case. Find the value of a.
26. The sides AB and AC of ΔABC are produced to points P and Q respectively. If bisectors BO and CO of ∠CBP and ∠BCQ respectively meet at point O, then prove that∠ BOC=90°-$\frac{1}{2}$ ∠BAC.



27. Prove that two triangles are congruent if any two angles and the included side of one triangle are equal to any two angles and the included side of other triangle.
28. Three vertices of a rectangle are (3,2), (-4,2) and (-4,5). Plot these points and find the coordinates of the fourth vertex. Find the length of diagonal and area of the rectangle.
29. There is a slide in a park. One of its side walls has been painted in some color with a message "KEEP THE PARK GREEN AND CLEAN".The perimeter of the triangular wall is 50 m. One side of a triangle is 4m longer than the smaller side and the third side is 6 m less than twice the smaller side. Find the area of the triangular wall. What message is depicted in this problem?
30. AB and CD are the smallest and longest side of quadrilateral ABCD. Prove that ∠A > ∠C.