D.A.V PUBLIC SCHOOL, SECTOR 8-C , CHANDIGARH
SUMMATIVE ASSESSMENT – I FOR CLASS IX (MATHEMATICS) 2015-16

Time Allowed : 3 hours | Maximum Marks : 90

General Instructions:

1. *All questions are compulsory.*
2. *The question paper consists of 31 questions divided into four sections A, B, C and D. Section-A comprises of 4 questions of 1 mark each; Section-B comprises of 6 questions of 2 marks each; Section-C comprises of 10 questions of 3 marks each and Section-D comprises of 11 questions of 4 marks each.*
3. *There is no overall choice in this question paper.*
4. *Use of calculator is not permitted.*

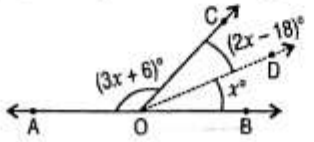
SECTION – A

Question numbers 1 to 4 carry 1 mark each.

1. Find the value of : $\frac{21\sqrt{12}}{10\sqrt{27}}$

2. Determine the degree of the polynomial : $4x^4 + 0x^3 + 0x^5 + 5x + 7$

3. In the given figure, find x, if AOB is a straight line.



4. "There are an infinite number of lines which pass through two distinct points". This statement is true or false? Give reasons for your answers.

SECTION – B

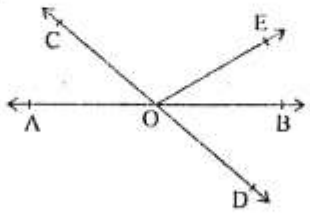
Question numbers 5 to10 carry 2 marks each.

5. Find the value of: $\left(1^3 + 2^3 + 3^3\right)^{\frac{1}{2}}$

6. Verify whether the following are zeroes of the polynomial, indicated against them or not.
$p(x) = (x + 1)(x - 2)$; $x = -1, 2$

7. Rewrite the Euclid's fifth postulate so that it would be easier to understand.

8. In the given figure, lines AB and CD intersect at O. If $\angle AOC + \angle BOE = 70°$ and $\angle BOD = 40°$, find $\angle BOE$ and reflex $\angle COE$.



9. Plot the points A (1, – 1) and B (4, 5) on a Cartesian plane and draw a line segment joining these points. Now write any one coordinate of a point on this line segment which lies between the points A and B.

10. An isosceles triangle has perimeter 30 cm and each of the equal sides is 12 cm. Find the area of the triangle.

SECTION – C

Question numbers 11 to 20 carry 3 marks each.

11. Simplify the expression : $\frac{2\sqrt{30}}{\sqrt{6}} - \frac{3\sqrt{140}}{\sqrt{28}} + \frac{\sqrt{55}}{\sqrt{99}}$

12. Find the values of a and b, if $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = a - b\sqrt{6}$.

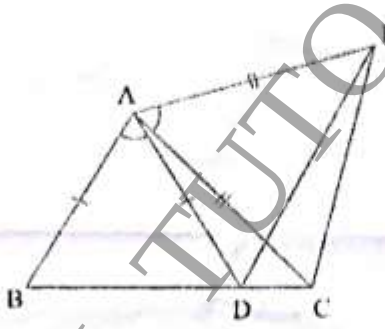
13. Factorise : $8x^3 + y^3 - 27z^3 + 18xyz$.

14. If the polynomials $az^3 + 4z^2 + 3z - 4$ and $z^3 - 4z + a$ leave the same remainder when divided by $z - 3$, then find the value of a.

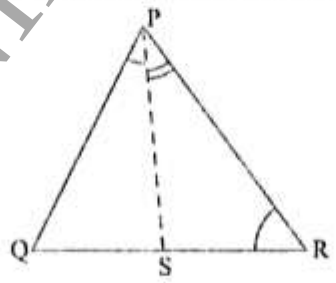
15. Simplify: $(2x + p - c)^2 - (2x - p + c)^2$

16. Plot the points P(1, 5), Q(3, 2), R(1, – 1) and S(– 1, 2) on a Cartesian plane and join them in order. Now write the name of figure obtained.

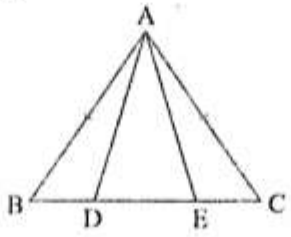
17. In the given figure, AC = AE, AB = AD and ∠BAD = ∠EAC. Show that BC = DE.



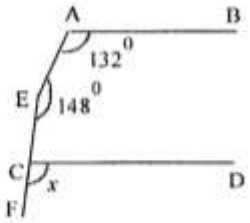
18. In the given figure, PR > PQ and PS bisects ∠QPR. Prove that ∠PSR > ∠PSQ.



19. In the given figure, triangle ABC is an isosceles with AB = AC, D and E are points on BC such that BE = CD. Show that AD = AE.



20. In the given figure, AB || CD. Find x.



SECTION – D

Question numbers 21 to 31 carry 4 marks each.

21. Simplify: $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2}$

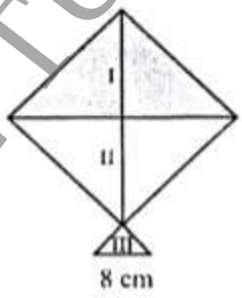
22. Represent $\sqrt{10}$ on the number line.

23. If $p(x) = x^2 - 4x + 3$, then find the value of $p(2) - p(-1) + p\left(\frac{1}{2}\right)$

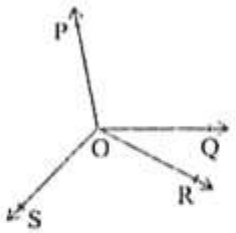
24. Without actually calculating the cubes, find the value of : $\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$

25. Factorise : $6x^3 - 7x^2 - 8x + 5$

26. Students of class 9th in a school made some kites for students of class 1st of their school. The kites were having shape of a square with a diagonal 32 cm and an isosceles triangle of base 8 cm and sides 6 cm each is to be made of three different shades as shown in the fig. How much paper of each shade has been used in a kite? What value is shown by the class 9th students?

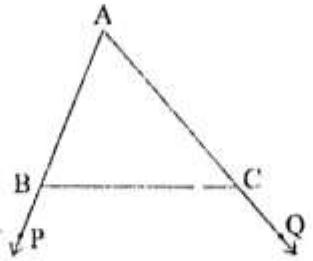


27. In the fig., OP, OQ, OR and OS are four rays. Prove that $\angle POQ + \angle QOR + \angle SOR + \angle POS = 360°$.

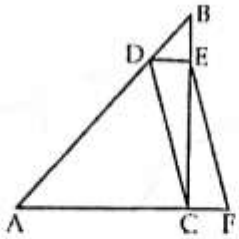


28. Prove that the sum of the angles of a triangle is 180°.

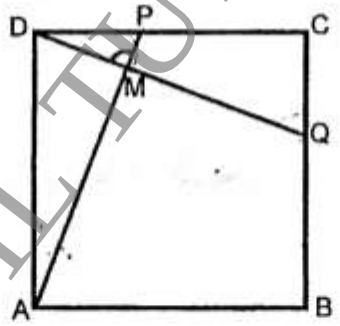
29. In the given figure, sides AB and AC of Δ ABC are extended to points P and Q respectively. If ∠PBC < ∠QCB, then show that AC > AB.



30. In given fig., ∠ACB is a right angle and AC = CD and CDEF is a parallelogram. If ∠FEC = 10^0 then calculate ∠BDE.



31. In given fig., ABCD is a square. P and Q are points on DC and BC respectively, such that AP = DQ. Prove that : (i) ΔADP ≅ ΔDCQ (ii) ∠DMP = 90°.



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Ans a
(iii) $Zn + FeSO_4 \Rightarrow ZnSO_4 + Fe$