SUMMATIVE ASSESSMENT– I, 2015-16

CBSE CALSS-IX

MATHEMATICS

Time allowed: 3 hours (Maximum Marks: 90)

General Instructions:

1. This question are compulsory.

2. The question paper is divided into four sections Section A: 4 question (1mark each) Section B: 6 question (2 marks each) Section C: 10 questions (3 mark each) Section D: 11 questions (4 mark each).

3. No internal choice is provided.

4. Use of calculators is not allowed.

Section A

Q.1 Write the distance of a point R (2, 4) from x-axis.

Q.2 Write a rational number between rational number 1/9 and 2/9

Q.3 Check whether (x – 2) is a factor of $x^3 - 3x^2 + 2x - 5$

Q.4 In figure -1, find value of x is:

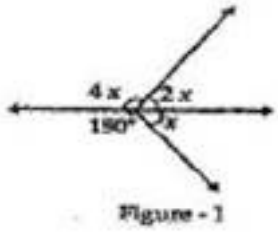


Figure - 1

Section B

Q.5 Express $2.\overline{93}$ in the form of p/q where p and q are integers and $q \neq 0$.

Q.6 If $x = 3 + 2\sqrt{2}$ then find the value of $(x - 1/x)^3$

Q.7 In figure-2, lines AC and BD intersect at O. If $\angle AOD : \angle DOC = 4:5$ then find $\angle COB$.

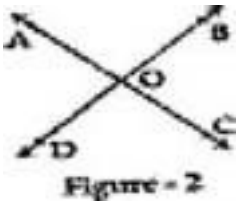


Figure - 2

Q.8 In fig – 3 if PQ | | RS then find $\angle SOR$

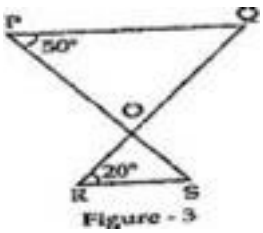


Figure - 3

Q.9 Find the area of a triangle, two sides of which are 18 cm and 10 cm and the perimeter is 42 cm.

Q.10 Write coordinates of two points on x-axis and two points on y- axis which are at equal distances from the origin.

Section C

Q.11 Varun was facing some difficulty in simplifying $\frac{1}{\sqrt{7}-\sqrt{3}}$. His classmate priya gave him a clue to rationalize the denominator for simplification. Varun simplified the expression and thanked priya for this goodwill. How Varun simplified $\frac{1}{\sqrt{7}-\sqrt{3}}$ What value does it indicate?

Q.12 A teacher divides a material of volume $(x^3+6x^2+12x+8)$ cubic units among three students equally. Is it possible to find the quantity of the material each student gets? Which moral values are depicted here by the teacher?

Q.13 Using suitable identity expand $(2x-3y-2z)^2$

Q.14 Give possible expressions for the length and breadth of rectangle whose area is given by $35y^2+13y-12$.

Q.15 A traffic island is a parallelogram with perimeter 84m. One of the sides is 24m and a diagonal is 30 m. Find the cost of surfacing at the rate of Rs 200 per sq m.

Q.16 In figure -5, If BE is bisector of $\angle ABC$ and CE is bisector of $\angle ACD$, then show that $\angle BEC = 1/2\ \angle BAC$.

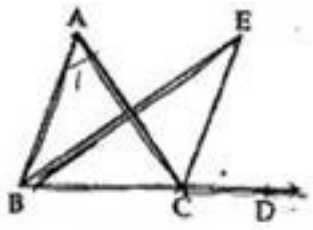


Figure - 5

Q.17 Show that in a right angled triangle, the hypotenuse is the longest side.

Q.18 In figure- 6, If AB||CD, $EF \perp CD$ and $\angle GED = 126°$ then find $\angle AGE, \angle GEF$ and $\angle FGE$.

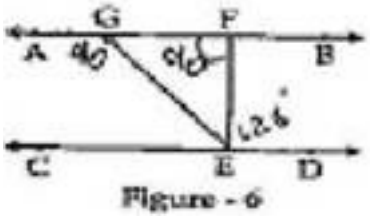


Figure - 6

Q.19 In figure - 7, If PS=PR, $\angle TPS = \angle QPR$ then prove that PT=PQ.

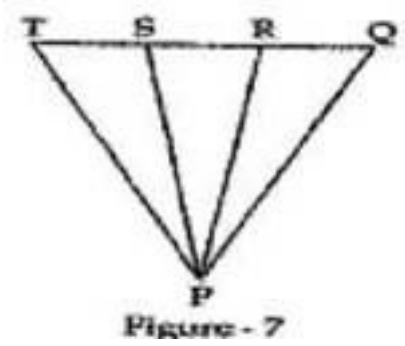
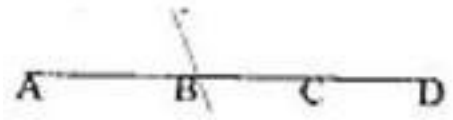


Figure - 7

Q.20 In the adjoining fig. 8



Suppose this is a chocolate bar & AC = BD, but your teacher divided it into two equal parts AB=CD.

i) State how has she done this and by using which axiom.

ii) She has also given the third part to one child of LKG. Which moral values of the teacher & the students are depicted here?

Section D

Q.21 If x + y + z = 1, xyz = -1 and xy + yz + xz = –1 then find the value of $x^3 + y^3 + z^3$

Q.22 A child forgot his address but says that his house is in the middle of $\sqrt{5}$ & $\sqrt{20}$. Help him in locating his house. Is his address a rational or Irrational number. Represent irrational part of address on number line. What type of value is depicted by you if you help the child reach home?

Q.23 The sides AB and AC of triangle ABC are produced to points E and D respectively. If bisectors BO and CO of $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90 - 1/2\angle BAC$.

Q.24 By dividing $p(x) = 2x^3 - 3x^2 - 17x + 30$ by g(x) = x + 3, show that g(x) is a factor of p(x) and hence factories p(x) completely.

Q.25 Find the value of p and q so that (x+1) and (x-1) are factors of $x^4 + px^3 + 3x^2 - 2x + q$.

Q.26 Find the value of: $\frac{4}{(216)^{\frac{2}{3}}} + \frac{1}{(256)^{\frac{3}{4}}} + \frac{2}{(243)^{\frac{1}{5}}}$

Q.27 If two parallel lines are intersected by a transversal, prove that the bisectors of two pairs of interior angles encloses a rectangle.

Q.28 Sarita made a rectangular chart for the school notice board mentioning the ways by which cleanliness can be maintained in one's surroundings. Write the co-ordinates of the vertices of this rectangle if its length and breadth are 12 and 8 respectively, one vertex at the origin, the longer side lies on the x- axis and one of the vertices lies in the fourth quadrant. Also find the area of chart paper used. What values does Sarita possess?

Q.29 In a triangle ΔPQR, PR > PQ and PS is the bisector of $\angle QPR$. Prove that $\angle PSR > \angle PSQ$.

Q.30 In figure – 9, two sides median AM of AABC are respectively equal to sides DE and EF and the median DN of ΔEEF. Prove that $\Delta ABC \cong \angle DEF$.

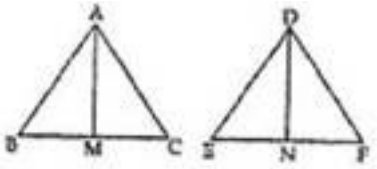


Figure - 9

Q.31 If $a + b = \frac{\sqrt{13} - \sqrt{11}}{\sqrt{13} + \sqrt{11}} + \frac{\sqrt{13} + \sqrt{11}}{\sqrt{13} - \sqrt{11}}$ Find the value of a and b.