CBSE Sample Paper-03 (unsolved)
SUMMATIVE ASSESSMENT -I
MATHEMATICS
Class - IX

Time allowed: 3 hours Maximum Marks: 90

General Instructions:

a) All questions are compulsory.
b) The question paper comprises of 31 questions divided into four sections A, B, C and D. You are to attempt all the four sections.
c) Questions 1 to 4 in section A are one mark questions. These are MCQs. Choose the correct option.
d) Questions 5 to 10 in section B are two marks questions.
e) Questions 11 to 20 in section C are three marks questions.
f) Questions 21 to 31 in section D are four marks questions.
g) There is no overall choice in the question paper. Use of calculators is not permitted.

Section A

Q1. In the recurring decimal expansion of $\frac{2}{17}$, there is a repeating block of 16 digits. How many digits will be there in the repeating block of $\frac{17}{7}$?

a) 16
b) 6
c) 26
d) 6

Q2. If $x^{50} + 50$ is divided by $x+1$, the remainder is

a) 52
b) 0
c) 50
d) 49

Q3. Among all the Euclid's postulates, the most complex postulate is

a) Postulate 4
b) Postulate 5

c) Postulate 3

d) Postulate 2

Q4. If 'n' represents the number of sides of a polygon then

a) $n = \dfrac{360°}{180° - \textit{Each Exterior Angle}}$

b) $n = \dfrac{360°}{180° - \textit{Each Interior Angle}}$

c) $n = \dfrac{n-2}{180° - \textit{Each Interior Angle}}$

d) None of these

SECTION- B

Q5. $x$is an irrational number. What can you say about the number x^2? Support your answer with examples.

Q6. Factorize: $a^3 - b^3 - a + b$

Q7. Prove or disprove: The statements that are proved are called axioms.

Q8. If the complement of an angle is equal to the supplement of four times the angle, then find the measure of the angle.

Q9. Can a triangle have two obtuse angles? Give reason for your answer.

Q10. $O$is a point on side BC of a ΔABCsuch that AO is the bisector of $\angle BAC$. Is it true to say that perimeter of the triangle is greater than $2AO$? Give reason four answer.

SECTION - C

Q11. Express 0.235 in the form of $\dfrac{p}{q}$

Q12. Prove that $\sqrt{2}$ is an irrational number.

Q13. Area of a rectangle is given by the polynomial $35x^2 + 13x - 12$. Find the expression for length and breadth.

Q14. Simplify the following by rationalizing the denominators: $\dfrac{2\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \dfrac{6\sqrt{2}}{\sqrt{6}+\sqrt{3}}$

Q15. Read the following statement: " Two intersecting lines cannot be perpendicular to the same line ". Check whether it is an equivalent version to the Euclid's fifth postulate.

Q16. Prove that two lines that are respectively perpendicular to two intersecting lines intersect each other.

Q17. In the following figure, $QP \perp ED$ and $QR \perp EF$. Show that $\angle PQR = \angle DEF$.

Q18. Prove that medians of an equilateral triangle are equal.

Q19. By plotting the points and joining them, show that the points $(-1,-1)$, $(2,3)$ and $(8,11)$ are collinear.

Q20. A rhombus sheet, whose perimeter is 140m and whose one diagonal is 56m long, is painted on both sides at the rate of Rs. 5 $/m^2$. Find the cost of painting.

SECTION - D

Q21. Visualize 3.775 on the number line.

Q22. Simplify: $\frac{1}{\sqrt{6}+\sqrt{7}} - \frac{1}{5+\sqrt{6}} + \frac{1}{\sqrt{8}+\sqrt{7}} - \frac{1}{\sqrt{6}-\sqrt{5}}$

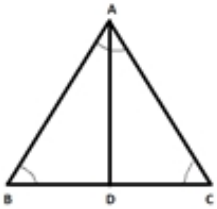
Q23. Show that the polynomial $3x^3 - 5x^2 - 5x - 1$ has no integral zero.

Q24. Find the value of p and q so that $(x+1)$ and $(x-1)$ are factors of $x^4 + px^3 + 3x^2 - 2x + q$.

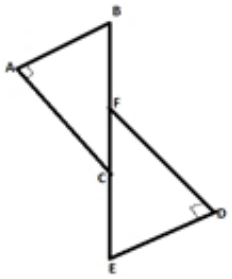
Q25. By dividing $p(x) = 2x^3 - 3x^2 - 17x + 30$ by $g(x) = x + 3$. Show that $g(x)$ is a factor of $p(x)$ and hence factorise $p(x)$ completely.

Q26. Factorise : $x^2 (xy)^4 - (yz)^4 z^2$

Q27. In the given figure, $\angle ABC = \angle ACB$, AD is the bisector of $\angle BAC$ and AD meets BC at D. Prove that D is the mid-point of BC.



Q28. In the following figure, $BA \perp AC$, $DE \perp DF$. Such that $BA = DE$ and $BF = EC$. Show that $AC = DF$.



Q29. Prove that the sum of any two sides of a triangle is greater than twice the median drawn to the third side.

Q30. If S is any point on the base QR produced of an isosceles triangle PQR . Prove that $PQ > PR$.

Q31. Find the percentage increase in the area of a triangle if its each side is doubled.