CBSE Sample papers-04 (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.
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. Show how $\sqrt{5}$ can be represented on the number line.

Q2. The value of K for which x – 1 is a factor of the polynomial $4x^3 + 3x^2 - 4x + K$ is

Q3. The distance of the point (2,3) from y axis's

Q4. What is the perimeter of an equilateral triangle of area $2\sqrt{3}\text{cm}^2$?

Q5. Identify $\sqrt{1.44}$ as rational or irrational numbers. Give its decimal representation also.

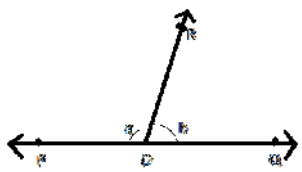
Q6. Find the zero of the polynomials $p(x) = 3x - 2$ and $p(x) = 2x + 5$.

Q7. In an isosceles triangle, prove that the altitude from the vertex bisects the base.

Q8. How many quadrants are of a coordinate plane? Write the quadrants in which

a) $x > 0$ b) $y > 0$ c) x and y both are less than zero.

Q9. In the given figure, $\angle POR$ and $\angle QOR$ form a linear pair. If $a - b = 80°$,find the values of a and b.



Q10. Is the following statement true? Justify your answer.

" A line contains exactly two points."

Q11. Prove that $\sqrt{7} + \sqrt{3}$ is not a rational number.

Q12. Visualize the representationof $2.\bar{3}$ on the number line upto 4 decimal places.

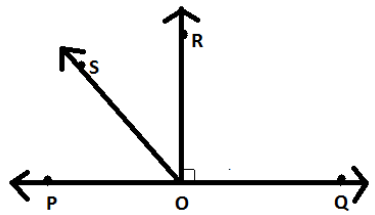
Q13. Find the value of a if the polynomial $2x^3+ax^2+11x+a+3$ is exactly divisible by $2x-1$.

Q14. Use the factor theorem to determine whether $g(x)$ is a factor of $p(x)$ if $p(x)=x^3+3x^2+3x+1$ and $g(x)=x+2$.

Q15. Is the statement true? Justify your answer.

" Two parallel lines cannot have a common end point. "

Q16. In the given figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that $\angle ROS=\frac{1}{2}(\angle QOS-\angle POS)$



Q17. If a transversal intersects two parallel lines , then each pair of interior angles on the same side of the transversal is supplementary.

Q18. Prove that the sum of three sides of a triangle is greater than the sum of the three medians of the triangle.

Q19. If $A(3,0)$, $B(0,4)$ and $C(0,0)$ are the vertices of a triangle, find out the length of AC (without plotting).

Q20. Sides of a triangle are in the ratio $12:17:25$ and its perimeter is $540cm$. Find its area.

Q21. If $a=\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $b=\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, find the value of a^2+b^2-5ab.

Q22. Prove that $\left(x^{\frac{1}{a}-b}\right)^{\frac{1}{a-c}}.\left(x^{\frac{1}{b}-c}\right)^{\frac{1}{b-a}}.\left(x^{\frac{1}{c}-a}\right)^{\frac{1}{c-b}}=1$

Q23. If $a+2b$ is a factor of $a^5+4b^2a^3+2a+2b+3$, find the value of b.

Q24. Factorise: $3x^3-4x^2-7x+2$

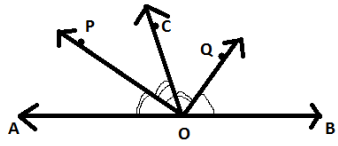
Q25. If $a+b+c=6$, find the value of $(2-a)^3+(2-b)^3+(2-c)^3-3(2-a)(2-b)(2-c)$

Q26. Which of the number $1,-1,3$ and -3 are zeroes of the polynomial $2x^4+9x^3+11x^2+4x-6$.

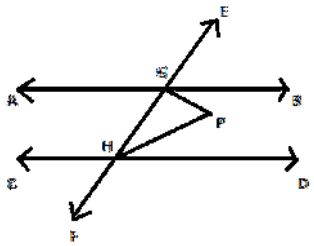
Q27. If the sides of a triangle are produced in order, prove that the sum of the exterior angles so formed is equal to four right angles.

Q28. If one angle of a triangle is equal to the sum of the other two angles, show that the triangle is a right angled triangle.

Q29. In the following figure, OP bisects $\angle AOC$, OQ bisects $\angle COB$ and $OP \perp OQ$. Show that A, O, B are collinear.



Q30. In the given figure, AB and CD are parallel lines. The bisectors of interior angles on the same side of the transversal EF intersect at P. Show that $\angle GPH = 90°$.



Q31. Find the area of a triangle having perimeter $30cm$, one side $12cm$ and difference of other two sides as $2cm$.