

CBSE Sample Paper-05 (Solved)
SUMMATIVE ASSESSMENT -I
MATHEMATICS
Class - IX

Time allowed: 3 hours

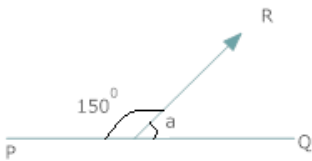
Maximum Marks: 90

General Instructions:

- a) All questions are compulsory.
- b) The question paper consists of 31 questions divided into four sections – A, B, C and D.
- c) Section A contains 4 questions of 1 mark each. Section B contains 6 questions of 2 marks each, Section C contains 10 questions of 3 marks each and Section D contains 11 questions of 4 marks each.
- d) Use of calculator is not permitted.

Section A

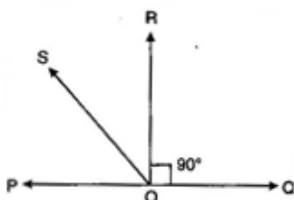
1. The $\frac{p}{q}$ form of the number 0.8 is
2. In figure the measure of $\angle a$ is



3. The distance of the point (-6, -2) from y-axis is
4. Two angles of triangles are 65° and 45° respectively. Find third angles.

Section B

5. Write the following numbers in ascending order: $\sqrt[6]{6}, \sqrt[3]{7}, \sqrt[4]{8}$
6. Find the zeroes of the polynomial $p(x) = x^2 - 5x + 6$.
7. Find the remainder when $2x^4 + 6x^3 + 2x^2 - x + 2$ is divided by $(x + 2)$.
8. In figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that: $\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$



9. In a ΔABC , $30A + 6B = 5C$. Determine $\angle A$, $\angle B$ and $\angle C$.

10. Draw a triangle ABC where vertices A, B and C are (0, 2), (2, -2) and (-2, 2) respectively.

Section C

11. Find five rational numbers between $\frac{3}{5}$ and $\frac{4}{5}$.

12. Simplify: $\frac{1}{2}\sqrt{486} - \sqrt{\frac{27}{2}}$

Or

Simplify: $\frac{\sqrt{a^2 - b^2} + a}{\sqrt{a^2 + b^2} + b} \div \frac{\sqrt{a^2 + b^2} - b}{a - \sqrt{a^2 - b^2}}$

13. Divide $f(y) = 3y^4 - 8y^3 - y^2 - 5y - 5$ by $y - 3$.

14. If the polynomials $px^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + p$ are divided by $x - 3$, then the remainder in each case is the same. Find the value of p .

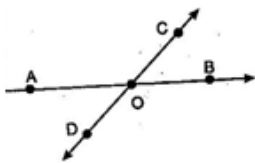
Or

What must be added to $(x^3 - 3x^2 + 4x - 13)$ to obtain a polynomial which is exactly divisible by $(x - 3)$?

15. Factorize: $a^2px + 2a^2qx - 2apy - 4aqy + pz + 2qz$

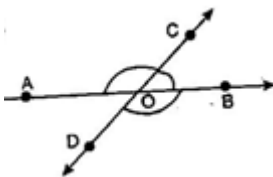
16. If a point C lies between two points A and B such that $AC = BC$, then point C is called the mid-point of line segment AB. Prove that every line segment has one and only one mid-point.

17. In the figure, if $\angle AOC + \angle BOD = 266^\circ$, then find all the four angles.



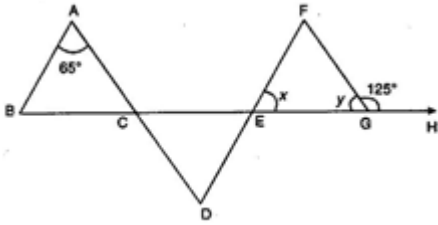
Or

If the figure, if $\angle AOC + \angle BOC = \angle BOD = 338^\circ$, then find the all four angles.



18. If a line is perpendicular to one of the two given parallel lines then prove that it is also perpendicular to the other line.

19. In a triangle ABC, $\angle A + \angle B = 84^\circ$ and $\angle B + \angle C = 146^\circ$. Find the measure of each of the angles of the triangle.
20. In the figure, find x and y , if $AB \parallel DF$ and $AD \parallel FG$.



Section D

21. Represent $\sqrt{5}$ on number line.
22. Rationalize the denominator of $\frac{1}{\sqrt{2} + \sqrt{3} + \sqrt{10}}$.

Or

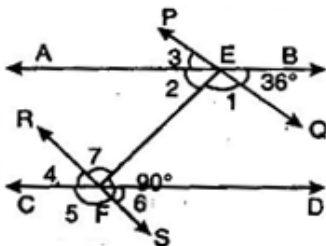
Simplify:
$$\frac{7\sqrt{3}}{\sqrt{10} + \sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6} + \sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15} + 3\sqrt{2}}$$

23. Ram has two rectangles in which their areas are given:
- (a) $25a^2 - 35a + 12$ (b) $35y^2 + 13y - 12$
- (i) Give possible expressions for the length and breadth of each of the rectangles.
- (ii) Which mathematical concept is used in this problem?
- (iii) Which value is depicted in this problem?
24. Factorize $x^3 - 23x^2 + 142x - 120$, if $x - 1$ is a factor of it.

Or

Factorize by using factor theorem: $y^3 - 7y + 6$

25. Factorize $x^3 + \frac{1}{x^3} - 2$
26. If lines AB, AC, AD and AE are parallel to a line l , then points A, B, C, D and E are collinear.
27. In the figure, $AB \parallel CD$ and $PQ \parallel RS$, find the angles marked.



28. Two plane mirrors are placed perpendicular to each other, as shown in the figure. An incident ray AB to the first mirror is first reflected in the direction of BC and then reflected by the second mirror in the direction of CD. Prove that $AB \parallel CD$.
29. In the figure, it is given that $\angle A = \angle C$ and $AB = BC$. Prove that $\triangle ABD \cong \triangle CBE$.
30. Draw the graph of linear equation: $8x - 3y + 4 = 0$
31. The side of a square exceeds the side of another square by 4 cm and the sum of the areas of the two squares is 400 sq. cm. Find the dimensions of the squares.

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