

CBSE Sample Paper-04 (Solved)
SUMMATIVE ASSESSMENT -I
MATHEMATICS
Class - IX

Time allowed: 3 hours

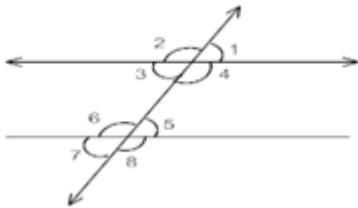
Maximum Marks: 90

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 which are multiple choice questions, 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

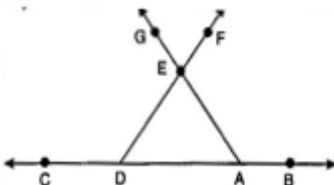
1. Convert $7.\bar{2}$ into fraction form.
2. In figure if $m \parallel n$ and $\angle 1 : \angle 2 = 1 : 2$. The measure of $\angle 8$ is



3. If $\triangle ABC$ is an isosceles triangle and $\angle B = 65^\circ$, find x .
4. If the perimeter of a rhombus is 20cm and one of the diagonals is 8cm. The area of the rhombus is

Section B

5. Express $0.\bar{7}$ in the form $\frac{m}{n}$.
6. Find the zeros of the polynomial $p(x) = cx + d$.
7. Find the remainder when $4x^3 - 3x^2 + 2x - 4$ is divided by $(x - 4)$.
8. In the figure, AB and AC are opposite rays and $\angle DAE = \angle ADE$. Prove that $\angle BAE = \angle CDE$.



9. The angles of a triangle are in the ratio 3 : 5 : 10. Find the measure of each angle.

10. Find out the quadrant in which the following points lie:

- (i) Point A = (3, -4) (ii) Point B = (-3, 4)
 (iii) Point C = (-3, -4) (iv) Point D = (3, 4)

Section C

11. Find six rational numbers between 3 and 4.

12. Examine whether $\sqrt{2}$ is rational or irrational.

Or

Represent $\sqrt{3}$ on number line.

13. Divide $f(x) = 2x^3 - x^2 - 2x - 7$ by $g(x) = x - 2$.

14. Find the remainder when $5x^3 - x^2 + 6x - 2$ is divided by $1 - 5x$.

Or

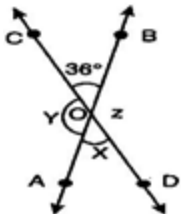
Find the value of p for which the polynomial $2x^4 + 3x^3 + 2px^2 + 3x + 6$ is divisible by $x + 2$.

15. Factorize: $4x^2 + 12xy + 9y^2 - 6x - 9y$

16. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2} AB$.

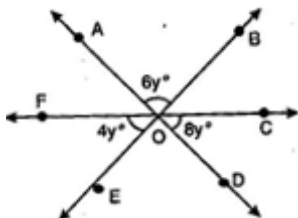
Explain by drawing the figure.

17. In the figure, line AB and CD intersect at O and $\angle BOC = 36^\circ$. Find $\angle X$, $\angle Y$ and $\angle Z$.



Or

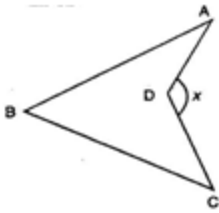
In the figure, find the value of y .



18. Prove that two lines which are parallel to the same line are parallel to one another.

19. The sum and difference of two angles of a triangle are 128° and 22° respectively. Find all the angles of the triangle.

20. In the figure, prove that $\angle x = \angle A + \angle B + \angle C$



Section D

21. If $x = 2 + \sqrt{3}$, then find the value of $x^2 + \frac{1}{x^2}$.

Or

Find the values of a and b , if $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + b\sqrt{7}$.

22. Gita told her classmate Radha that " $\sqrt{\frac{\sqrt{2}-1}{\sqrt{2}+1}}$ is an irrational number." Radha replied that "you

are wrong" and further claimed that "If there is a number x such that x^3 is an irrational number, then x^5 is also irrational." Gita said, "No Radha, you are wrong". Radha took some time and after verification accepted her mistakes and thanked Gita for pointing out the mistakes.

Read the above passage and answer the following questions:

(a) Justify both the statements.

(b) What value is depicted from this question?

[Value Based Question]

23. If the polynomials $(3x^3 + ax^2 + 3x + 5)$ and $(4x^3 + x^2 - 2x + a)$ leave the same remainder when divided by $(x-2)$, then find the value of a . Also find the remainder in each case.

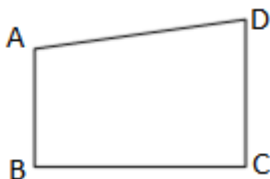
24. Without actual division, prove that $(2x^4 - 6x^3 + 3x^2 + 3x - 2)$ is exactly divisible by $(x^2 - 3x + 2)$.

25. Factorize: $81x^4 - y^4$

Or

Factorize: $1 + 2ab - (a^2 + b^2)$

26. In the figure, AB and CD are respectively the smallest and longest sides of a quadrilateral ABCD. Show that $\angle A > \angle C$.



27. If two lines intersect, then the vertically opposite angles are equal.

28. Prove that the angle bisectors of a triangle pass through the same point, i.e., they are concurrent.
29. If two parallel lines are intersected by a transversal, then prove that the bisectors of the two pairs of interior angles enclose a rectangle.
30. Draw the graph of linear equation $4x + y + 1 = 0$.
31. Find the percentage increase in the area of a triangle and s be its perimeter.

myCBSEguide.com