

Class X — SA1 Model Question Paper

Mathematics (English Version)

SA1 syllabus covered

- Ch 1 Real Numbers; Ch 2 Polynomials; Ch 3 Pair of Linear Equations in Two Variables; Ch 4 Quadratic Equations; Ch 5 Arithmetic Progressions
- Ch 6 Triangles; Ch 7 Coordinate Geometry; Ch 8 Introduction to Trigonometry; Ch 9 Some Applications of Trigonometry
- Ch 13 Statistics; Ch 14 Probability
- Not included for SA1: Ch 10 Circles, Ch 11 Areas Related to Circles, Ch 12 Surface Areas and Volumes (SA2 / public exam portion)

Question paper pattern

Section	Type of question	No. of questions	Marks
I	Objective / very short (MCQ, fill in, true-false, assertion-reason)	12 (Q 1–12)	$12 \times 1 = 12$
II	Short answer	8 (Q 13–20)	$8 \times 2 = 16$
III	Short answer (4 marks)	8 (Q 21–28)	$8 \times 4 = 32$
IV	Long answer — internal choice in every question	5 (Q 29–33)	$5 \times 8 = 40$
	Total	33	100

Where each chapter is tested

Chapter	Paper 1 — question numbers	Paper 2 — question numbers
Real Numbers	1, 13, 21, 29(a)	1, 13, 21, 29(a), 29(b)
Polynomials	2, 3, 14, 29(b)	2, 3, 14
Pair of Linear Equations	4, 15, 30(a), 30(b)	4, 15, 30(a)
Quadratic Equations	5, 16, 31(a)	5, 16, 28, 30(b)
Arithmetic Progressions	6, 22, 31(b)	6, 22, 31(a)
Triangles	7, 17, 28, 32(a)	7, 17, 32(a)
Coordinate Geometry	8, 18, 23	8, 18, 23, 31(b)
Introduction to Trigonometry	9, 19, 24	9, 19, 24
Applications of Trigonometry	10, 25, 32(b)	10, 25, 32(b)
Statistics	11, 26, 33(a), 33(b)	11, 20, 26, 33(a)
Probability	12, 20, 27	12, 27, 33(b)

Notes for teachers

- Both papers follow the BSEAP SSC 2025-26 blueprint (4 sections, 33 questions, choice only in Section IV) and use only the SA1 chapters listed above.
- Every numerical answer has been worked out and gives clean values, so the papers can be used directly for valuation.
- 15 minutes of the 3 h 15 min is reading time, as in the public examination.

Andhra Pradesh — Summative Assessment 1 (SA1), 2026-27

Class X — SA1 Model Question Paper

Mathematics (English Version) — Model Paper 2

Time: 3 Hours 15 Minutes

Max. Marks: 100

Instructions:

1. In the duration of 3 hours 15 minutes, 15 minutes of time is allotted to read the question paper.
2. All answers shall be written in the answer booklet only.
3. Question paper consists of 4 sections and 33 questions.
4. Internal choice is available in Section IV only.
5. Answers shall be written neatly and legibly.

SECTION – I

12 × 1 = 12 M

Note: i) Answer all the questions in one word or phrase. ii) Each question carries 1 mark.

1. The LCM of 12, 15 and 21 is
A) 105 B) 210 C) 420 D) 840
2. The graph of $y = p(x)$ cuts the x-axis at exactly three points. The number of zeroes of $p(x)$ is _____.
3. If α and β are the zeroes of $x^2 + 7x + 10$, then $\alpha + \beta =$ _____.
4. The lines represented by $x + 2y = 4$ and $2x + 4y = 12$ are
A) intersecting B) parallel C) coincident D) perpendicular
5. Write the nature of the roots of $x^2 - 4x + 4 = 0$.
6. The common difference of the A.P. $1/3, 5/3, 9/3, 13/3, \dots$ is _____.
7. Assertion (A): If in two triangles the corresponding angles are equal, the triangles are similar.
Reason (R): This is the AAA similarity criterion.
A) Both A and R are true and R is the correct explanation of A.
B) Both A and R are true but R is not the correct explanation of A.
C) A is true, R is false.
D) A is false, R is true.
8. The y-coordinate of every point on the x-axis is _____.
9. The value of $\tan 45^\circ$ is
A) 0 B) 1 C) $\sqrt{3}$ D) $1/\sqrt{3}$
10. "The angle of depression of an object seen from a point is equal to the angle of elevation of that point seen from the object." (True / False)
11. The class mark of the class interval 20–30 is _____.
12. Which of the following cannot be the probability of an event?
A) $2/3$ B) -1.5 C) 15% D) 0.7

SECTION – II

8 × 2 = 16 M

Note: i) Answer all the questions. ii) Each question carries 2 marks.

13. Check whether 6^n can end with the digit zero for any natural number n . Give reason.
14. Find a quadratic polynomial whose sum and product of zeroes are -3 and 2 respectively.

15. Solve: $x + y = 14$ and $x - y = 4$.
16. Find the discriminant of $2x^2 - 4x + 3 = 0$ and state the nature of its roots.
17. If $\triangle ABC \sim \triangle DEF$, $AB = 4$ cm, $DE = 6$ cm and $EF = 9$ cm, find BC .
18. Find the distance between the points $(2, 3)$ and $(4, 1)$.
19. Evaluate: $2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$.
20. Write the formula for the median of grouped data and explain the terms in it.

SECTION – III

8 × 4 = 32 M

Note: i) Answer all the questions. ii) Each question carries 4 marks.

21. Given that $\sqrt{3}$ is irrational, prove that $5 - \sqrt{3}$ is irrational.
22. The 11th term of an A.P. is 38 and the 16th term is 73. Find the 31st term.
23. Find the coordinates of the point which divides the line segment joining $(-1, 7)$ and $(4, -3)$ in the ratio 2 : 3.
24. Prove that $\sec A (1 - \sin A)(\sec A + \tan A) = 1$.
25. A kite is flying at a height of 60 m above the ground. The string attached to it is tied temporarily to a point on the ground and makes an angle of 60° with the ground. Assuming there is no slack, find the length of the string. ($\sqrt{3} = 1.732$)
26. Find the mean of the following data using the assumed mean method.

Class interval	10–25	25–40	40–55	55–70	70–85	85–100
Frequency	2	3	7	6	6	6

27. Two dice are thrown at the same time. Find the probability of getting
(i) a sum of 8 (ii) a doublet (same number on both) (iii) a sum of 11 or more (iv) a sum of 13.
28. Find the values of k for which the quadratic equation $2x^2 + kx + 3 = 0$ has two equal roots.

SECTION – IV

5 × 8 = 40 M

Note: i) Answer all the questions. ii) Each question carries 8 marks. iii) There is an internal choice for each question.

29. a) Prove that $\sqrt{2}$ is irrational.

(OR)

- b) Find the HCF and LCM of 404 and 96 and verify that $\text{HCF} \times \text{LCM} = \text{product of the two numbers}$.
30. a) Draw the graphs of $2x + y = 6$ and $2x - y + 2 = 0$. Find the coordinates of the vertices of the triangle formed by these lines and the x-axis.

(OR)

- b) Find two consecutive positive integers, the sum of whose squares is 365.
31. a) How many terms of the A.P. 24, 21, 18, ... must be taken so that their sum is 78? Explain the double answer.

(OR)

- b) Show that the points $A(1, 7)$, $B(4, 2)$, $C(-1, -1)$ and $D(-4, 4)$ are the vertices of a square.

32. a) Prove that if a line divides any two sides of a triangle in the same ratio, then the line is parallel to the third side.

(OR)

- b) The angles of elevation of the top of a tower from two points at distances of 4 m and 9 m from the base of the tower, and in the same straight line with it, are complementary. Prove that the height of the tower is 6 m.

33. a) The following table shows the daily wages of workers in a factory. Find the mean daily wage using the step-deviation method.

Daily wages (₹)	100–120	120–140	140–160	160–180	180–200
Number of workers	12	14	8	6	10

(OR)

- b) A box contains 90 discs numbered from 1 to 90. One disc is drawn at random. Find the probability that it bears

(i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5 (iv) a number divisible by both 2 and 3.

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