

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 1

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 HCF of 96 and 404 is
A) 4 B) 8 C) 12 D) 24
2. If 2 is a zero of the polynomial $p(x) = x^2 - 5x + k$, then the value of k is
A) -6 B) 4 C) 6 D) 10
3. Write a quadratic polynomial whose zeroes are -1 and 4.
4. The pair of equations $2x + 3y = 7$ and $4x + 6y = 14$ has _____ solutions.
A) no B) a unique C) infinitely many D) exactly two
5. Assertion (A): The equation $x^2 + 4 = 0$ has no real roots.
Reason (R): If the discriminant $b^2 - 4ac < 0$, a quadratic equation has no real roots.
Choose the correct answer:
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.
6. The 10th term of the A.P. 3, 7, 11, 15, ... is _____.
7. All _____ triangles are similar. (equilateral / isosceles / scalene)
8. Find the distance of the point (-6, 8) from the origin.
9. $\sin^2 30^\circ + \cos^2 30^\circ =$ _____
10. "As the angle of elevation of the Sun increases, the shadow of a vertical tower becomes longer."
(True / False)
11. For a data, mean = 20 and median = 22. Using the empirical relation, find the mode.
12. The probability of an impossible event is
A) 1 B) 0 C) 0.5 D) -1

SECTION – II

8 × 2 = 16 M

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

13. Express 156 as a product of its prime factors.
14. Find the zeroes of the quadratic polynomial $x^2 - 2x - 8$ and verify the relationship between the sum of the zeroes and its coefficients.

15. For what value of k will the pair of equations $kx + 3y = 3$ and $12x + ky = 6$ have no solution?
16. Find the roots of $2x^2 - 5x + 3 = 0$ by factorisation.
17. State the Basic Proportionality Theorem (Thales' Theorem).
18. Find the coordinates of the mid-point of the line segment joining $(2, -3)$ and $(-6, 7)$.
19. If $\sin A = 3/5$, find $\cos A$ and $\tan A$.
20. A die is thrown once. What is the probability of getting a prime number?

SECTION – III

8 × 4 = 32 M

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

21. Find the HCF and LCM of 6, 72 and 120 using the prime factorisation method.
22. Find the sum of the first 20 terms of the A.P. 1, 4, 7, 10, ...
23. Find the ratio in which the y-axis divides the line segment joining the points $(5, -6)$ and $(-1, -4)$.
Also find the point of intersection.
24. Prove that $(1 + \tan^2 A) / (1 + \cot^2 A) = \tan^2 A$.
25. A ladder 15 m long leans against a vertical wall and makes an angle of 60° with the ground. Draw a rough figure and find the height at which the ladder touches the wall. ($\sqrt{3} = 1.732$)
26. Find the mean of the following data using the direct method.

Class interval	0–10	10–20	20–30	30–40	40–50
Frequency	5	8	15	12	10

27. A bag contains 5 red, 8 white and 7 black balls. One ball is drawn at random. Find the probability that the ball drawn is
(i) red (ii) white (iii) not black (iv) neither red nor white.
28. In $\triangle ABC$, $DE \parallel BC$ with D on AB and E on AC . If $AD = x$ cm, $DB = (x - 2)$ cm, $AE = (x + 2)$ cm and $EC = (x - 1)$ cm, find the value of x .

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 $\sqrt{5}$ is irrational.

(OR)

- b) Find the zeroes of the quadratic polynomial $6x^2 - 7x - 3$ and verify the relationship between the zeroes and the coefficients.

30. a) Solve the following pair of linear equations graphically: $x + y = 5$ and $2x - y = 4$.

(OR)

- b) The sum of a two-digit number and the number obtained by reversing its digits is 66. If the digits of the number differ by 2, find the number. How many such numbers are there?

31. a) A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.

(OR)

- b) Which term of the A.P. 3, 15, 27, 39, ... will be 132 more than its 54th term?

32. a) State and prove the Basic Proportionality Theorem.

(OR)

- b) From the top of a 7 m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45° . Determine the height of the tower.

33. a) Find the median of the following data.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	8	20	15	7	5

(OR)

- b) Find the mode of the following data.

Class interval	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Frequency	6	8	10	12	6	5	3

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