

GRADE 9 – MATHEMATICS

MOCK TEST

Time: 1½ Hours

Maximum Marks: 40

General Instructions:

All questions are compulsory.

The question paper is divided into four sections – A, B, C and D.

Section A contains 8 MCQs of 1 mark each.

Section B contains 4 short-answer questions of 2 marks each.

Section C contains 3 long-answer questions of 4 marks each.

Section D contains 3 case-study questions of 4 marks each.

Show all necessary working.

SECTION A – MCQs

$8 \times 1 = 8$ Marks

Q1. The coordinates of a point lying on the y-axis are:

- (a) (x, 0) (b) (0, y) (c) (x, y) (d) (0, 0) only

Q2. Which of the following is a linear polynomial?

- (a) $3x^2 + 2$ (b) $5x - 7$ (c) $x^3 - 1$ (d) $4x^2 + x$

Q3. Which of the following is an irrational number?

- (a) $7/9$ (b) 0.25 (c) $\sqrt{7}$ (d) -3

Q4. The value of $(a + b)^2 - (a - b)^2$ is:

- (a) $2a^2 + 2b^2$ (b) $4ab$ (c) $2ab$ (d) $a^2 - b^2$

Q5. The angle made by a complete revolution is:

- (a) 90° (b) 180° (c) 270° (d) 360°

Q6. The area of a parallelogram with base 12 cm and corresponding height 5 cm is:

- (a) 17 cm^2 (b) 30 cm^2 (c) 60 cm^2 (d) 120 cm^2

Q7. A coin is tossed once. The probability of getting a head is:

- (a) 0 (b) $1/4$ (c) $1/2$ (d) 1

Q8. If $p(x) = 3x - 5$, then $p(2)$ is:

- (a) 1 (b) 5 (c) 6 (d) 11

SECTION B – SHORT ANSWER QUESTIONS

$4 \times 2 = 8$ Marks

Q9. Plot the points A(3, 2), B(-3, 2), C(-3, -2) and D(3, -2) on the Cartesian plane. Name the figure formed.

Q10. Find the zero of the linear polynomial $p(x) = 4x - 12$.

Q11. Simplify using a suitable algebraic identity:
 $103^2 - 97^2$.

Q12. A bag contains 5 red balls, 3 blue balls and 2 green balls. One ball is selected at random. Find the probability of getting:
(i) a blue ball (ii) a green ball.

SECTION C – LONG ANSWER QUESTIONS

$3 \times 4 = 12$ Marks

Q13. (a) Represent $\sqrt{5}$ on the number line using a suitable geometrical construction.
(b) State whether $\sqrt{5}$ is rational or irrational.

Q14. (a) Expand using an algebraic identity: $(2x + 3y)^2$.
(b) Hence find the value of 203^2 .

Q15. A rectangular garden is 28 m long and 18 m wide. A path of uniform width is constructed inside the garden along its boundary, leaving a rectangular lawn of length 24 m and breadth 14 m.
Find:

- (i) Area of the entire garden
- (ii) Area of the lawn
- (iii) Area occupied by the path
- (iv) Perimeter of the original garden.

SECTION D – CASE STUDY BASED QUESTIONS

$3 \times 4 = 12$ Marks

Q16. Case Study – School Coordinate Map

A school map is represented on a Cartesian plane. The positions of four important places are represented by the points A(2, 4), B(8, 4), C(8, 1) and D(2, 1).

- (a) In which quadrant does point A lie? (1)
- (b) Which points have the same x-coordinate? (1)
- (c) Find the length of AB. (1)
- (d) Find the length of BC. (1)

Q17. Case Study – Game of Chance

During a mathematics activity, a student rolls a fair die 60 times. The results are recorded below.

Number	1	2	3	4	5	6
Frequency	8	12	9	11	10	10

- (a) What is the total number of trials? (1)
- (b) Which number occurred most frequently? (1)

- (c) Find the experimental probability of getting 2. (1)
- (d) Find the experimental probability of getting an even number. (1)

Q18. Case Study – Area of a School Court

A rectangular school court is 24 m long and 15 m wide. A square flower bed of side 3 m is made inside the court.

- (a) Find the area of the rectangular court. (1)
- (b) Find the area of the square flower bed. (1)
- (c) Find the remaining area of the court. (1)
- (d) Find the perimeter of the rectangular court. (1)