

Reason (R): At 6:30, the minute hand points at 6 and the hour hand is exactly halfway between 6 and 7, forming an angle of 15° .

SECTION – B Questions 11 to 14 carry 2 marks each.

11. Find the missing angle if four angles around a point are 85° , 110° , 95° , and the fourth is unknown.
12. Using the divisibility rule for 9, check whether 8,532 is divisible by 9. Explain your answer.
13. Classify the angle formed between the hands of a clock at 4:00.
14. Write the prime factorization of 252.

SECTION – C Questions 15 to 17 carry 3 marks each.

15. Find a number between 200 and 300 that is a multiple of 4, 6, and 9.
16. Three angles around a point measure 115° , 90° , and 75° . Find the fourth angle and classify all four angles.
17. Find the smallest 3-digit number that leaves a remainder of 5 when divided by both 8 and 12.

SECTION – D Questions 18 carries 5 marks each.

18. During a science fair, a student arranges three spotlights around a circular stage. The angles between the lights are 130° , 95° , and an unknown third angle. The student also notices that the number of students visiting the fair is 336 and the number of projects on display is 252.
 - (a) Find the third angle formed by the spotlights around the centre point.
 - (b) Classify all three angles.
 - (c) Find the HCF of 336 and 252 to determine the maximum group size if students and projects are to be divided into equal groups. (d) Find the LCM of 336 and 252.
 - (e) Verify: $\text{HCF} \times \text{LCM} = \text{Product of the two numbers}$.

SECTION – E (Case Study Based Questions) Questions 19 to 20 carry 4 marks each.

19. Case Study 1: The School Garden Path

A school has a circular garden with a path running through its centre. Three pathways meet at the exact centre of the garden, dividing the space around the centre into three angles. The gardener measures the first two angles as 120° and 95° . The gardener also wants to plant trees at equal intervals — he has 180 saplings of type A and 270 saplings of type B, and wants to arrange them in identical groups where each group has only one type of sapling.

- (i) Find the third angle at the centre of the garden.
- (ii) Classify all three angles (Acute, Right, Obtuse, Reflex, or Straight).
- (iii) Find the HCF of 180 and 270 to determine the maximum number of saplings in each group.
- (iv) How many groups of each type of sapling will there be?

20. Case Study 2: The Rotating Clock Hands

Priya is studying geometry using a wall clock in her classroom. She observes the angle between the clock hands at different times and also notices that two bells in the school ring at regular intervals. Bell A rings every 12 minutes and Bell B rings every 18 minutes. Both bells rang together at 9:00 AM.

- (i) What is the angle between the hands of the clock at 3:00 PM? Classify this angle.
- (ii) At what time do the hour and minute hands form a straight angle (180°)?
- (iii) Find the prime factorization of 12 and 18.
- (iv) Find the LCM of 12 and 18. At what time will both bells next ring together?