

Q1. In a science exhibition, 7398 students gathered in the school ground for a group photograph.

The photographer wanted the students to stand in such a way that the number of students in each row is equal to the number of rows (a square formation).

After arranging as many students as possible in this square formation, the remaining students were asked to help in managing the stalls and visitors.

Sub-questions

1. What is the largest number of students that can be arranged in a perfect square formation?
2. How many rows and columns will be formed in this arrangement?
3. How many students will remain outside the square formation?

Q2. A group of gardeners is planting saplings in a community park.

The number of saplings that can be planted in a fixed time depends on the number of gardeners working.

The more gardeners there are, the more saplings can be planted in the same time.

It is given that 4 gardeners can plant 80 saplings in 1 hour.

- (i) This situation is an example of which type of proportion? (1)
- (ii) How many saplings can 10 gardeners plant in 1 hour? (1)
- (iii) If the community wants to plant 600 saplings in one hour, how many gardeners are required? (2)
- (iv) If the community wants to plant 300 saplings in 2 hours, how many gardeners will be needed?

Q3. A book publisher prints two types of books – Textbooks and Novels.

The printing cost of a Textbook is ₹120 per book, while the printing cost of a Novel is ₹200 per book.

To ensure profit, the publisher decides to sell Textbooks at a 25% profit and Novels at a 40% profit.

- (i) Calculate the selling price of each book. (1)
- (ii) Find the ratio of the profit earned on a Textbook to that of a Novel. (1)
- (iii) If the publisher prints 800 Textbooks and 400 Novels, calculate the total profit earned. (2)
- (v) If the publisher wants to earn a total profit of ₹60,000 by printing only Novels, how many Novels must he print? (2)