



BGS Vijnatham School

Worksheet 1

Subject: Mathematics

Step: VII

Case Study 1: The School Sports Meet

During the annual sports day of BGS Vijnatham School, Rahul participated in the Long Jump event. He made three attempts. His first jump was 3.45 m, his second jump was 0.65 m longer than the first jump, and his third jump was 0.28 m shorter than the second jump.

- What was the length of Rahul's second jump?
- Find the length of Rahul's third jump.
- What is the total distance covered by Rahul combining all three jumps?
- How much further should Rahul have jumped in his first attempt to reach a target of exactly 5 m?

Case Study 2: Designing the School Garden

The Eco-Club of a school wants to design a rectangular herbal garden. The width of the garden is fixed at b meters. The length of the garden is chosen to be 4 meters more than twice its width.

- Write an algebraic expression for the length of the garden in terms of b .
- Write a simplified expression for the perimeter of the rectangular garden.
- If the width (b) of the garden is 8 meters, find its actual length.
- Calculate the cost of fencing the garden at the rate of ₹150 per meter if the width is 8 meters.

Case Study 3: The Monthly Budget Plan

Aarna receives a monthly pocket money of ₹ y . She spent $\frac{2}{5}$ of it on storybooks, paid ₹120 for a school science project, and saved the remaining ₹240.

- Form an algebraic equation representing Aarna's total income and expenditure.
- Find the total monthly pocket money (y) received by Aarna.
- How much money did she spend specifically on storybooks?
- If next month her pocket money increases by ₹100, what will be her new pocket money?

Case Study 4: The Fruit Market Trip

Aman's mother went to the supermarket to buy fruits. She bought 2.5 kg of apples at the rate of ₹120.50 per kg and 3.75 kg of mangoes at the rate of ₹80 per kg.

- What is the total cost of the apples purchased?
- What is the total cost of the mangoes purchased?
- Find the total bill amount for both fruits combined.
- If she gave a ₹1000 note to the shopkeeper, how much balance money will she get back?

Case Study 5: Fitness Tracking

A fitness enthusiast decides to start running to build stamina. On day 1, he runs for 10 minutes. Every subsequent day, he increases his running time by exactly x minutes.

a. Write an algebraic expression for the running time on the 5th day.

b. Write a general algebraic expression for the running time on the n th day.

c. If he increases his time by $x = 3.5$ minutes every day, what will be his running duration on the 10th day?

d. On which day will his running time reach exactly 45 minutes if $x = 5$ minutes?