



Creative Questions:

1. **The area of a square is equal to the area of a rectangle. The length of the rectangle is 36 metre and the breadth is 25 metre. [Dj.B.- 17]**
 - a) Find the square root ratio of length and breadth of the rectangle.
 - b) If the length of the rectangle is decreased by 10% and the breadth is increased by 10% then what is the percentage of decrease or increase in area of the rectangle?
 - c) If trees are planted at a distance of 3 metre around the square field then how many trees will be required? When planting cost of a tree is Tk. 23 then what will be total cost of planting trees?

2. **Raisa saves Tk. 10,000 in bank for 5 years with 8% annual interest of stipend from her school. [R.B.- 16]**
 - a) Resolve into factors of $x^2 - 5x - 6$.
 - b) Determine the difference between simple interest and compound interest.
 - c) How many years will need to twice the amount by simple interest?

3. **Jayantha took loan Tk. 10,000 from bank for 3 years at 5% rate of profit. [S.B.- 16]**
 - a) Find the simple profit.
 - b) Find the difference of simple profit and compound profit.
 - c) If the difference of simple profit and compound profit is Tk. 45.75, what is the amount of loan Jayantha?

4.
 - (i) A student bought some pens for Tk. 240. If he would get more one pen then the cost pen would be less Tk. 1.
 - (ii) The difference between simple profit and compound profit of some capital in 2 years is Tk. 1 at 4% profit.
 - a) Resolve into factors: $4x^2 + \frac{1}{4x^2} - 2 + 4x - \frac{1}{x}$.
 - b) How many pens did he buy?
 - c) Find the Capital.

5. **Sum of a number and its multiplicative inverse is 3.**
 - a) Taking the number as the variable x then express the above information by an equation.
 - b) Find the value of $x^3 - \frac{1}{x^3}$.
 - c) Prove that, $x^5 + \frac{1}{x^5} = 123$.

6. **Each of the members of an association decided to subscribe 100 times the number of members. But 7 members did not subscribe. As a result, amount of subscription for each member was increased by Tk. 500 than the previous.**
 - a) If the number of members is x and total amount of subscription is Tk. A then find the relation between them.
 - b) Find the number of members of the association and total amount of subscription.
 - c) $\frac{1}{4}$ of total amount of subscription at the rate of simple profit 5% and rest of the money at the rate of simple profit 4% were invested for 2 years. Find the total profit.

7. **A bus was hired at Tk. 2400 to go for a picnic under the condition that every passenger would bare equal fare. But due to the absence of 10 passengers then the fare was increased by Tk. 8 per head.**

- a) Determine the increased fare per head and percentage of absent passengers.
- b) Determine the fare per head of the passengers
- c) Find the difference of simple profit and compound profit of the amount equivalent to the bus fare in 13 years at the rate of profit 5%.

8. A cistern has two pipes. It is filled in m minutes by the 1st pipe and emptied in n minutes by the 2nd pipe.

- a) If the cistern contains v litres of water then how much water will be stored in 5 minutes through the 1st pipe while the 2nd pipe is closed?
- b) How long it takes to fill the empty cistern when the two pipes are opened at the same time?
- c) If another pipe is connected to the cistern which fills the cistern in P minutes then how long it takes to fill the empty cistern when three pipes are opened at the same time?