Work Sheet – 02 (Mathematics)
for class – Ten (04.11.2020)
Chapter – Five, Exercise - 5.1
Equation in one variable
Creative Questions:

1. **Sanjib and his friends picked up 1950 lichees for x person from Sanjib's lichee tree. Again if 34 lichees were picked up for the presence of Sanjib's younger brother the average of the lichees become less by 1. But if y lichee were picked up they would get 1 lichee more in an average. [B.B.- 15]**
   a) Express the number of lichee in the form of x received by each of them after coming Sanjib's brother.
   b) Determine the value of x.
   c) Find the value of y.

2. **Number of passengers in a steamer is 376. The fare per head for the cabin is thrice that for the deck. The fare per head for the deck is Tk. 60 and the total fare collected is Tk. 33840.**
   a) Letting the number of passengers on the deck as x then form the equation.
   b) What is the number of passengers on the deck and in the cabin?
   c) What is the fare per head for the cabin?

3. **The digit in the unit place is one more than 3 times the digit in tens place. The number formed by interchanging the digit is 8 times the sum of the digits.**
   a) Write down the equation of the given number and interchanged number.
   b) Find the number.
   c) Find the hypotenuse and the area of the right-angled triangle if the digits of original number indicate the base and perpendicular of the triangle.

4. **Mr. Rahman from his Tk. 5600 invested Tk. x at the rate of profit 5% per annum and the rest of the money at the rate of profit 4% per annum. After one year he got the total profit of Tk.256.**
   a) Find the solution set of the equation $x^{-1} + b^{-1} + a^{-1} = (a + b + x)^{-1}$.
   b) Find the value of x.
   c) After 1 year if Mr. Rahman invested total amount at the rate of 6% per annum for 5 years then find the difference of simple and compound profit.

5. **Scenario-1: $ax + by = c$ and $a^2x + b^2y = c^2$ are two algebraic equation.**

   Scenario-2: Difference of two digits of a number consisting of two digits is 4. If the places of the digits are interchanged sum of the numbers so found and the original number will be 110.
   a) Solve: $\frac{z-2}{z-1} = 2 - \frac{1}{z-1}$.
   b) From Scenario-1 then determine (x, y).
   c) From Scenario-2 then find the number.

6. **A number is $\frac{2}{3}$ times the other number and the sum of the two numbers is 100.**
   a) Express the information's into an equation of one variable.
   b) Determine the two numbers.
   c) Difference of numerator and denominator of a proper fraction is 1. If a fraction formed by subtracting 1 from the both numerator and denominator is equal to the proper fraction formed by the previous two numbers, determine the fraction.