

INDIAN SCHOOL AL WADI AL KABIR

Department: Mathematics

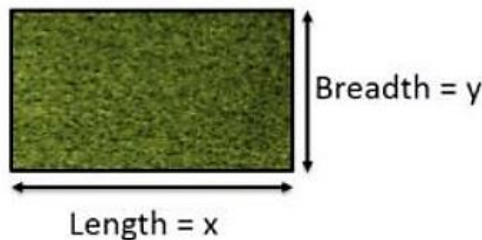
Class X

Pair of L.E in two variables & Real Numbers

19 - 04 - 2023

Case study – based questions (4 marks each)

- Q.1.** Class X students of a secondary school in Krishnagar have been allotted a rectangular plot of a land for gardening activity. They are asked to find the dimensions of the rectangular plot. To help them find out the dimensions their Mathematics teacher provided them with the following hints



The area of the rectangle gets reduced by $9m^2$, if its length is reduced by 5m and breadth is increased by 3m. If we increase the length by 3m and breadth by 2m, the area increases by $67m^2$.

- (i) Find the length of the rectangular garden.
- (ii) Find the breadth of the rectangular garden.
- (iii) Taking length as x m and breadth as y m, find the pair of linear equations representing the above situation.

OR

- (iv) Find the area of the rectangular garden.

- Q.2.** Two oil tankers contain 825 litres and 675 litres of kerosene oil respectively.

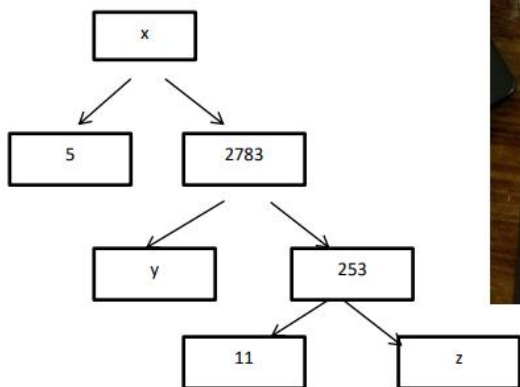


- (i) Find the prime factorization of 825
- (ii) What is the maximum capacity of a container which can measure the kerosene oil of both the tankers when used an exact number of times?
- (iii) How many times the container is used for both tankers to fill?

Q.3.

A Mathematics Exhibition is being conducted in your School and one of your friends is making a model of a factor tree. He has some difficulty and asks for your help in completing a quiz for the audience.

Observe the following factor tree and answer the following:



- (i) Find the value of z.
- (ii) Find the value of y.
- (iii) Find the value of x.

OR

- (iv) Find the prime factorization of 13915

Q.4.

Mr. RK Agrawal is owner of a famous amusement park in Delhi. The ticket charge for the park is ₹150 for children and ₹ 400 for adult.



Generally, he does not go to park and it is managed by team of staff. One day Mr Agrawal decided to random check the park and went there. When he checked the cash counter, he found that 480 tickets were sold and ₹ 134500 were collected.

- (i) Let the number of children visited be x and the number of adults visited be y.
Write the correct system of equations that model the problem.
- (ii) How many children visited the park?
- (iii) How many adults visited the park?

OR

- (iv) How much amount is collected if 300 children and 350 adults had visited the park?

Q.5. A bookstore shopkeeper gives books on rent for reading. He has a variety of books in his store related to fiction, stories and quizzes, etc. He takes a fixed charge for the first two days and an additional charge for the subsequent day. Amruta paid ₹ 22 for a book kept for 6 days; While Radhika paid ₹16 for keeping the books for 4 days.



Assume that the fixed charge be ₹ x and additional charge (per day) be ₹ y .

Based on the above information, answer the following questions:

- (i) Frame the linear equation for Radhika.
- (ii) Frame the linear equation for Amruta.
- (iii) What is the additional charge for each subsequent day for a book?

OR

What is the total amount paid by both, if both of them have kept the book for 2 more days

ANSWERS

Q.1	(i) 17m (ii) 9m (iii) $3x - 5y = 6$; $2x + 3y = 6$ (OR) $153m^2$.	Q.2	(i) $5^2 \times 3 \times 11$ (ii) 75 litres (iii) 11 and 9 times
Q.3	(i) 23 (ii) 11 (iii) 13915 (OR) $5 \times 11^2 \times 23$	Q.4	(i) $x + y = 480$ and $3x + 8y = 2690$ (ii) 230 (iii) 250 (OR) ₹ 185000
Q.5	(i) $x + 6y = 22$ (ii) $x + 4y = 16$ (iii) ₹ 3 (OR) ₹ 50		