Class 10 Mathematics - Pair of Linear Equations in Two Variables

Name: _____

Date: _____

Advanced Worksheet 4

Questions

1. The difference between two numbers is 8 and their sum is 32. Find the numbers.
2. A train covers 240 km. If its speed increases by 10 km/h, the journey takes 1 hour less. Find the original speed.
3. The sum of the digits of a two-digit number is 11. If the digits are interchanged, the new number is 27 more than the original number. Find the number.
4. A school sold 120 tickets for a play. Adult tickets cost ₹50 and student tickets cost ₹20. The total collection was ₹4200. Find the number of adult and student tickets sold.
5. A fraction becomes 1/2 when 2 is added to both numerator and denominator. It becomes 1/3 when 1 is added to both. Find the fraction.
6. Why are word problems often converted into pair of linear equations before solving?

Answer Key

1.

$x - y = 8$

$x + y = 32$

$2x = 40$

$x = 20$

$y = 12$

Numbers = 20 and 12

2.

Let speed = x km/h

$240/x - 240/(x+10) = 1$

Solving:

$x = 40$ km/h

3.

Let tens digit = x

Units digit = y

$x + y = 11$

$10y + x = 10x + y + 27$

$9(y - x) = 27$

$y - x = 3$

Solving:

x = 4

y = 7

Number = 47

4.

a + s = 120

50a + 20s = 4200

a = 60

s = 60

Adult tickets = 60

Student tickets = 60

5.

Let fraction = x/y

(x+2)/(y+2) = 1/2

(x+1)/(y+1) = 1/3

Solving:

x = 1

y = 4

Fraction = 1/4

6. They convert real-life situations into mathematical equations that can be solved systematically.