# UDAAN

## 2025

# Pair of linear equation in two variable

Mathematics

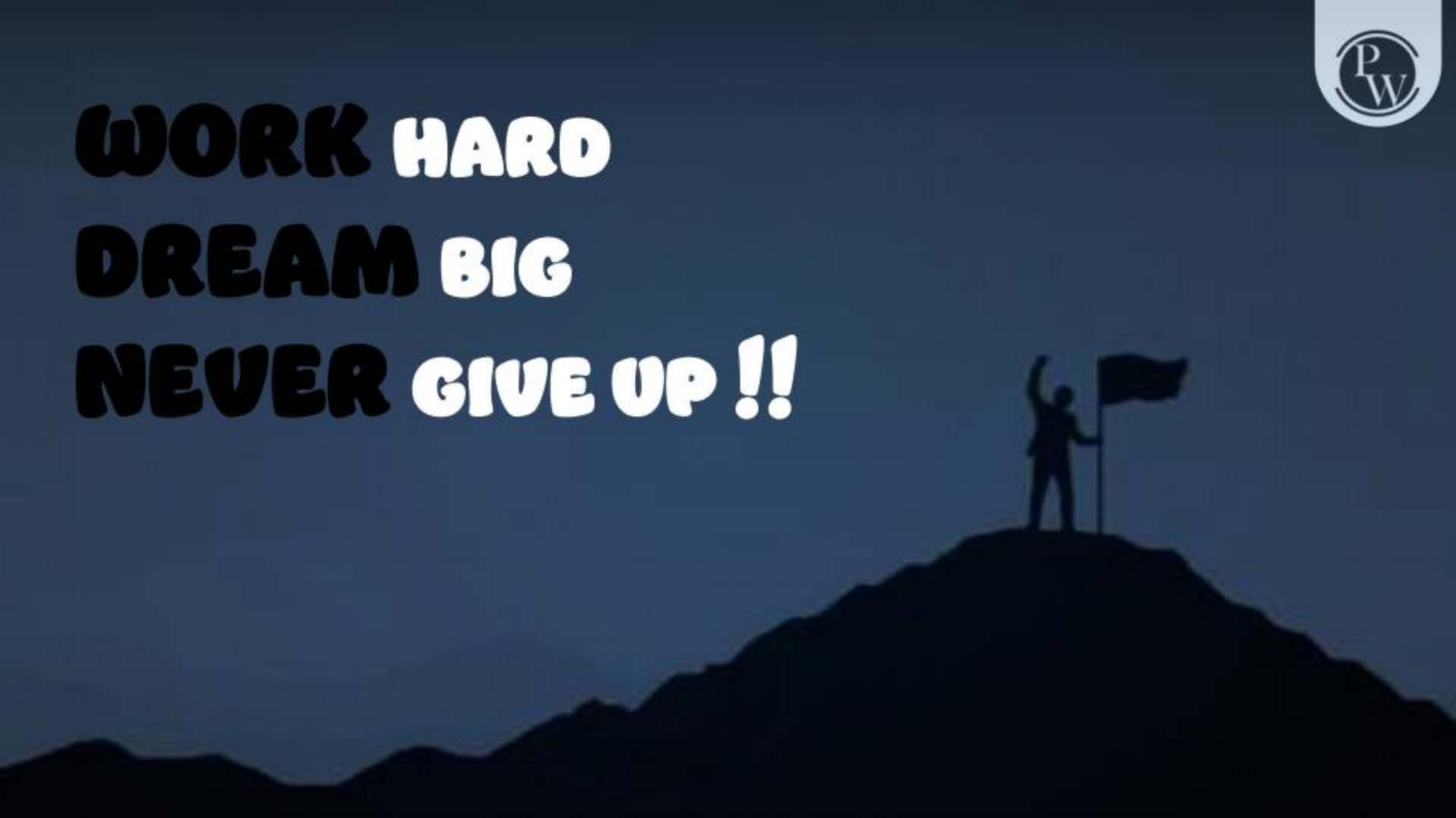
Lecture - 07

By – Ritik Sir

# Topics *to be covered*

1. Word Problems (Part - 3)

Miscellaneous


WORK HARD
DREAM BIG
NEVER GIVE UP !!

# Taxi charges

Fixed charge

charge for the distance.

F.C = 10RS.

charge per km = 15RS.

20 km.

10 + 20(15) = 310

50km

10 + 50(15) = 760

Fixed charge = $x$

Charge per km = $y$.

For 10 km = $x + 10y$

For 12 km = $x + 12y$

Topic : Miscellaneous Problems

#Q. The taxi charges in a city comprise of a fixed charge together with the charge for the distance covered. For a journey of 10 km the charge paid is Rs. 75 and for a journey of 15 km the charge paid is Rs. 110. What will a person have to pay for travelling a distance of 25 km?

[NCERT, CBSE 2000]

let the Fixed charge be $x$ Rs.

let charge per km $= y$ Rs.

According to the question :-

For 10 km

$$x + 10y = 75 \quad \text{(i)}$$

For 15 km

$$x + 15y = 110 \quad \text{(ii)}$$

$x + 10y = 75$

$x + 15y = 110$

$-5y = -35$

$y = 7$

$\Rightarrow x + 10y = 75$

$x + 70 = 75$

$x = 5$

Fixed charge = 5 Rs.

Charge per km = 7 Rs.

"For 25 km"

$= x + 25y$

$= 5 + 25(7)$

$= 180$ RS

Topic : Miscellaneous Problems

F.C = 400 Rs
Cost of food per day = Rs 30.

#Q. A part of monthly hostel charges in a college are fixed and the remaining depend on the number of days one has taken food in the mess. When a student *A* takes food for 20 days, he has to pay Rs 1000 as hostel charges whereas a student *B*, who takes food for 26 days, pays Rs 1180 as hostel charges. Find the fixed charge and the cost of food per day.

[NCERT, CBSE 2000]

Fixed charge = x Rs.

Charge of food per day = y Rs.

Student A (20 days)

$x + 20y = 1000$ — ①

Student B (26 days)

$x + 26y = 1180$ — ②

Topic : Miscellaneous Problems

Fixed charge = Rs 15.
charge for each extra day = Rs.

#Q. A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Shristi paid ₹ 27 for a book kept for seven days, while Rekha paid ₹ 21 for the book, she kept for five days. Find the fixed charge and the additional charge paid by them.

[Board Term-I, 2015]

Shristi → 7 days

3 days  4 days

$x + 4y = 27$ ①

Rekha → 5 days

3d  2d

$x + 2y = 21$ ②

Fixed charge for 3 days = x Rs.

charge per day after 3 days = y Rs.

50 Rs → 20 notes.

Total money = ?

100 Rs → y 'n' = (100y)

50 Rs → 1 'n' = 50 Rs

50 Rs → 2 'n' = (50 × 2) Rs

50 Rs → 20 'n' = (50 × 20) Rs

50 Rs → x 'n' = (50 × x) Rs.

Topic : Miscellaneous Problems

Rs 50 = 10 notes
Rs 100 = 15 notes.

#Q. Meena went to a bank to withdraw Rs. 2000. She asked the cashier to give her Rs. 50 and Rs. 100 notes only. Meena got 25 notes in all. Find how many notes Rs. 50 and Rs. 100 she received. [NCERT]

let no. of notes of Rs 50 = $x$.

let no. of notes of Rs 100 = $y$.

Total notes = 25

$x + y = 25$ ... (1)

$50x + 100y = 2000$ ... (2)

$50(x + 2y) = 2000$

$x + 2y = \frac{2000}{50}$

$x + 2y = 40$


$l = x+2$

$b = y+2$

$A + O = (x+2)(y+2)$

$A - O$

$l = x$

$b = y$

$A = xy$

Topic : Miscellaneous Problems

Ans: $l = 17$ units, $b = 9$ units.

#Q. The area of a rectangle gets reduced by 9 square units if its length is reduced by 5 units and the breadth is increased by 3 units. If we increase the length by 3 units and breadth by 2 units, the area is increased by 67 square units. Find the length and breadth of the rectangle. [NCERT]

Case-II

$l = x + 3$

$b = y + 2$

$A + 67 = (x+3)(y+2)$

$xy + 67 = xy + 2x + 3y + 6$

$61 = 2x + 3y$ — (2)

Case-I

$l = x - 5$

$b = y + 3$

$A - 9 = (x-5)(y+3)$

$xy - 9 = xy + 3x - 5y - 15$

$0 = xy + 3x - 5y - 15 + 9 - xy$

$6 = 3x - 5y$ — (1)

$l = x$

$b = y$

$A = xy$

Topic : Miscellaneous Problems

Ans: $l = 15cm, b = 10cm.$

#Q. In a painting competition of a school a child made Indian national flag whose perimeter was 50 cm. Its area will be decreased by 6 square cm, if length is decreased by 3 cm and breadth is increased by 2 cm then find the dimension of flag.

[Board Term – I, 2015]

Perimeter = 50cm

$2x+2y = 50$

$2(x+y) = 50$

$x+y = 25$ — (1)

$l = x$

$b = y$

$l = x-3$

$b = y+2$

$A = xy$

$A-6 = (x-3)(y+2)$

$xy-6 = xy+2x-3y-6$

$0 = 2x-3y$ — (2)

no. of right answers = 20

no. of wrong answers = 15

negative marking = 2.

Positive " = 4.

$20(4) - 15(2) = 80 - 30 = 50$

no. of right answers = $x$

no. of wrong answers = $y$

negative marking = 2.

positive " = 4.

Total marks = ?

$= (x \times 4) - (y \times 2)$

$= 4x - 2y$

Topic : Miscellaneous Problems

#Q. Yash scored 40 marks in a test, getting 3 marks for each right answer and losing 1 mark for each wrong answer. Had 4 marks been awarded for each correct answer and 2 marks been deducted for each incorrect answer, then Yash would have scored 50 marks. How many questions were there in the test? [NCERT]

Let,

no. of right answers = $x$.

no. of wrong answers = $y$.

Total Questions = $x+y$.

Case I

$$+3x - y = 40 \quad \text{--- (1)}$$

$$4x - 2y = 50 \quad \text{--- (2)}$$

$\therefore$

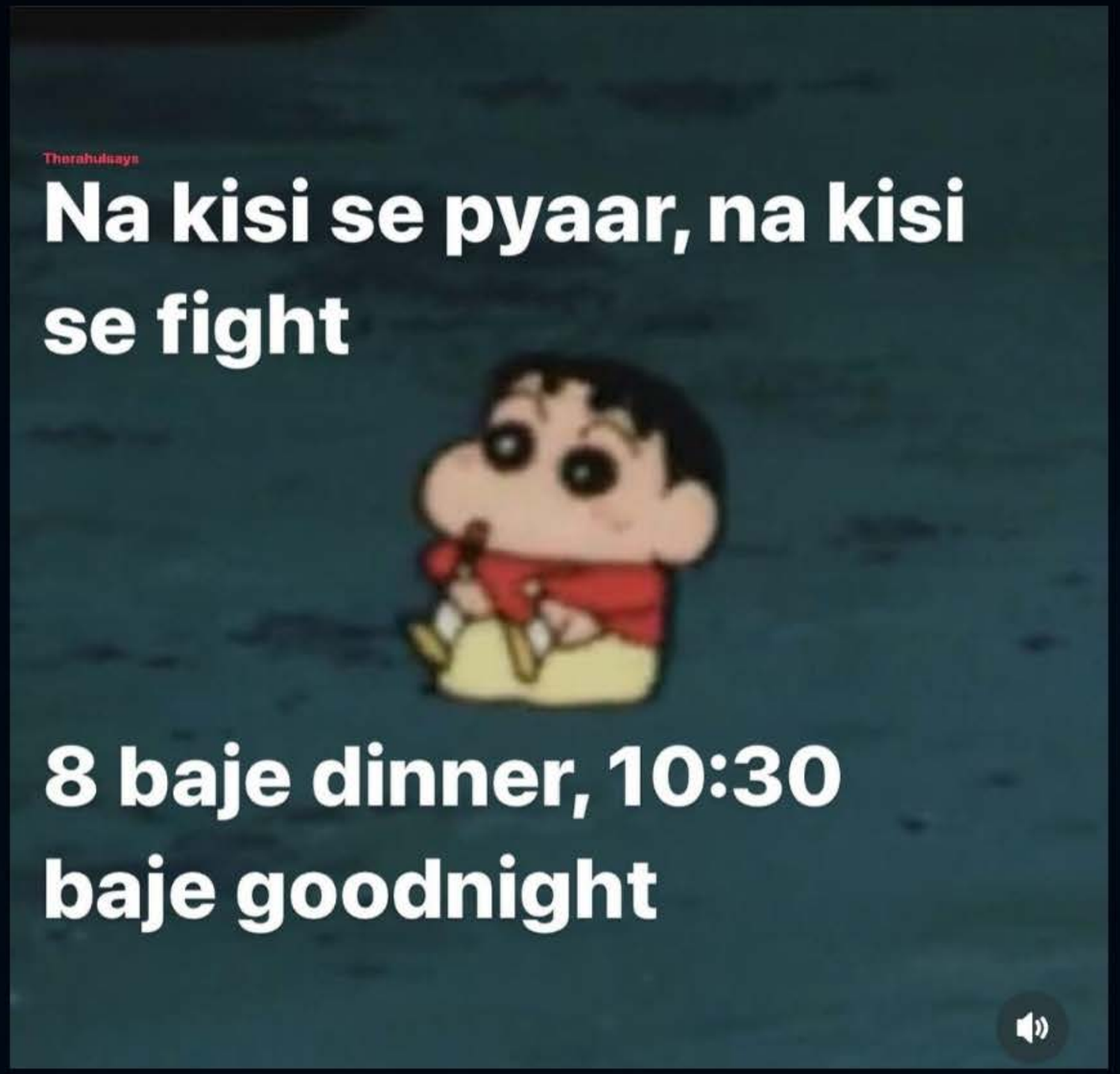
Ans: 20 Questions.

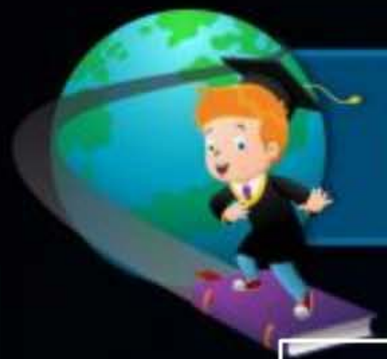
Topic : Miscellaneous Problems

#Q. Raghav scored 70 marks in a test, getting 4 marks for each right answer and losing 1 mark for each wrong answer. Had 5 marks been awarded for each correct answer and 2 marks been deducted for each wrong answer, then Raghav would have scored 80 marks. How many questions were there in the test?

**[Board Term – I, 2015]**


Ans: 30 Questions.


Therahulsays
Na kisi se pyaar, na kisi se fight
8 baje dinner, 10:30 baje goodnight



# Homework

NCERT Puri Banjaiye.

## Question Bank

Page 116 → Case Based (III)

Page 115 → Short answer
7, 8, 9

## Module:

Page 100 → Case Based (I)
" " (II)

Page 98 → 8, 9, 14

Doing nothing at all:

$(1.00)^{365} = 1.00$

Vs

Making small consistent efforts:

$(1.01)^{365} = 37.7$

@visualhustles

Nancy tyagi

234 days

# THANK YOU