RD Sharma Solutions Class 10 Maths Chapter 3 Exercise 3.3: In Chapter 3, Exercise 3.3 of RD Sharma's Class 10 Maths, students explore solving pairs of linear equations in two variables using graphical and algebraic methods. This exercise delves into three main algebraic methods: substitution, elimination, and cross-multiplication.

Each method is applied to find the point of intersection, or the solution, of the two equations, which represents the values of the variables satisfying both equations simultaneously. Exercise 3.3 also includes practical problems, enhancing students' problem-solving skills and helping them understand the real-life application of linear equations in various contexts.

RD Sharma Solutions Class 10 Maths Chapter 3 Exercise 3.3 Overview

Exercise 3.3 in RD Sharma’s Class 10 Maths on Pair of Linear Equations in Two Variables is crucial for developing a strong foundation in algebra. Mastering methods like substitution, elimination, and cross-multiplication empowers students to solve real-world problems involving two variables, such as calculating rates, distances, and finances. These techniques are fundamental for higher mathematics, physics, and economics, were systems of equations frequently model complex relationships.

Understanding these concepts enhances logical thinking and problem-solving skills, essential for competitive exams and advanced studies. This exercise builds confidence in handling equations, laying groundwork for more advanced algebraic and analytical concepts.

RD Sharma Solutions Class 10 Maths Chapter 3 Exercise 3.3 Pair of Linear Equations in Two Variables

Below is the RD Sharma Solutions Class 10 Maths Chapter 3 Exercise 3.3 Pair of Linear Equations in Two Variables -

Solve the following system of equations:

1. $11x + 15y + 23 = 0$

$7x – 2y – 20 = 0$

Solution:

The given pair of equations are

$11x +15y + 23 = 0$ …………………………. (i)

$7x – 2y – 20 = 0$ …………………………….. (ii)

From (ii),

$2y = 7x – 20$

⇒ $y = (7x −20)/2$ ……………………………… (iii)

Now, substituting y in equation (i), we get

⇒ $11x + 15((7x−20)/2) + 23 = 0$

⇒ $11x + (105x − 300)/2 + 23 = 0$

⇒ $(22x + 105x – 300 + 46) = 0$

⇒ $127x – 254 = 0$

⇒ $x = 2$

Next, putting the value of x in equation (iii), we get,

⇒ $y = (7(2) − 20)/2$

∴ $y= -3$

Thus, the value of x and y is found to be 2 and -3, respectively.

2. $3x – 7y + 10 = 0$

$y – 2x – 3 = 0$

Solution:

The given pair of equations are

$3x – 7y + 10 = 0$ …………………………. (i)

$y – 2x – 3 = 0$ ……………………………….. (ii)

From (ii),

$y – 2x – 3 = 0$

$y = 2x+3$ ……………………………… (iii)

Now, substituting y in equation (i), we get

⇒ $3x – 7(2x+3) + 10 = 0$

⇒ $3x – 14x – 21 + 10 = 0$

⇒ $-11x = 11$

⇒ $x = -1$

Next, putting the value of x in equation (iii), we get

⇒ $y = 2(-1) + 3$

∴ $y= 1$

Thus, the value of x and y is found to be -1 and 1, respectively.

3. 0.4x + 0.3y = 1.7

0.7x – 0.2y = 0.8

Solution:

The given pair of equations are

$0.4x + 0.3y = 1.7$

$0.7x – 0.2y = 0.8$

Let's, multiply LHS and RHS by 10 to make the coefficients an integer.

$4x + 3y = 17$ ……………………….. (i)

$7x – 2y = 8$ …………………………… (ii)

From (ii),

$7x – 2y = 8$

$x = (8 + 2y)/7$……………………………… (iii)

Now, substituting x in equation (i), we get

⇒ $4[(8 + 2y)/7] + 3y = 17$

⇒ $32 + 8y + 21y = (17 \times 7)$

⇒ $29y = 87$

⇒ $y = 3$

Next, putting the value of y in equation (iii), we get

⇒ $x = (8 + 2(3))/ 7$

⇒ $x = 14/7$

∴ $x = 2$

Thus, the value of x and y is found to be 2 and 3, respectively.

4. x/2 + y = 0.8

7/(x+ y/2) = 10

Solution:

The given pair of equations are

$x/2 + y = 0.8 \Rightarrow x + 2y = 1.6$…… (a)

$7/(x + y/2) = 10 \Rightarrow 7 = 10(x + y/2) \Rightarrow 7 = 10x + 5y$

Let's, multiply the LHS and RHS of equation (a) by 10 for easy calculation.

So, we finally get

$10x + 20y = 16$ ……………………….. (i) And,

$10x + 5y = 7$ …………………………… (ii)

Now, subtracting two equations, we get

⇒ (i) – (ii)

$15y = 9$

⇒ $y = 3/5$

Next, putting the value of y in the equation (i), we get

$x = [16 - 20(3/5)]/10$

⇒ $(16 - 12)/10 = 4/10$

∴ $x = 2/5$

Thus, the value of x and y obtained are 2/5 and 3/5, respectively.

5. 7(y + 3) – 2(x + 2) = 14

4(y – 2) + 3(x – 3) = 2

Solution:

The given pair of equations are

7(y+3) – 2(x+2) = 14…………………………. (i)

4(y-2) + 3(x-3) = 2……………………………….. (ii)

From (i), we get

7y + 21 – 2x – 4 = 14

7y = 14 + 4 – 21 + 2x

⇒ y = (2x – 3)/7

From (ii), we get

4y – 8 + 3x – 9 = 2

4y + 3x – 17 – 2 = 0

⇒ 4y + 3x – 19 = 0 …………….. (iii)

Now, substituting y in equation (iii),

4[(2x − 3)/7] + 3x – 19=0

8x – 12 + 21x – (19 x 17) = 0 [after taking LCM]

29x = 145

⇒ x = 5

Now, putting the value of x and in equation (ii),

4(y-2) + 3(5-3) = 2

⇒ 4y -8 + 6 = 2

⇒ 4y = 4

∴ $y = 1$

Thus, the value of x and y obtained are 5 and 1, respectively.

6. x/7 + y/3 = 5

x/2 – y/9 = 6

Solution:

The given pair of equations are

$x/7 + y/3 = 5$………………………… (i)

$x/2 - y/9 = 6$………………………………..(ii)

From (i), we get

$x/7 + y/3 = 5$

$\Rightarrow 3x + 7y = (5\times21)$ [After taking LCM]

$\Rightarrow 3x = 105 - 7y$

$\Rightarrow x = (105 - 7y)/3$……. (iv)

From (ii), we get

$x/2 - y/9 = 6$

$\Rightarrow 9x - 2y = 108$ ……………………… (iii) [After taking LCM]

Now, substituting x in equation (iii), we get

$9[(105 - 7y)/3] - 2y = 108$

$\Rightarrow 945 - 63y - 6y = 324$ [After taking LCM]

$\Rightarrow 945 - 324 = 69y$

$\Rightarrow 69y = 621$

$\Rightarrow y = 9$

Now, putting the value of y in equation (iv),

$x = (105 - 7(9))/3$

$\Rightarrow$ x = (105 − 63)/3 = 42/3

$\therefore$ x = 14

Thus, the value of x and y obtained are 14 and 9, respectively.

7. x/3 + y/4 = 11

5x/6 − y/3 = −7

Solution:

The given pair of equations are

x/3 + y/4 = 11…………………………. (i)

5x/6 − y/3 = −7……………………………….. (ii)

From (i), we get

x/3 + y/4 = 11

$\Rightarrow$4x + 3y = (11×12) [After taking LCM]

$\Rightarrow$ 4x =132 – 3y

$\Rightarrow$ x = (132 – 3y)/4……. (iv)

From (ii), we get

5x/6 − y/3 = −7

$\Rightarrow$ 5x – 2y = -42 ……………………… (iii) [After taking LCM]

Now, substituting x in equation (iii), we get

5[(132 − 3y)/4] – 2y = -42

$\Rightarrow$ 660 – 15y – 8y = -42 x 4 [After taking LCM]

$\Rightarrow$ 660 + 168 = 23y

$\Rightarrow$ 23y = 828

$\Rightarrow$ y = 36

Now, putting the value of y in equation (iv), x = (132 – 3(36))/4

⇒ x = (132 − 108)/4 = 24/4

∴ x = 6

Thus, the value of x and y obtained are 6 and 36, respectively.

8. 4/x + 3y = 8

6/x −4y = −5

Solution:

Taking 1/x = u

Then, the two equations become

4u + 3y = 8…………………… (i)

6u – 4y = -5……………………. (ii)

From (i), we get

4u = 8 – 3y

⇒ u = (8 − 3y)/4 …….. (iii)

Substituting u in (ii),

[6(8 − 3y)/4] – 4y = -5

⇒ [3(8−3y)/2] − 4y = −5

⇒ 24 − 9y −8y = −5 x 2 [After taking LCM]

⇒ 24 – 17y = -10

⇒ -17y =- 34

⇒ y = 2

Putting y=2 in (iii), we get

u = (8 − 3(2))/4

⇒ u = (8 − 6)/4

⇒ $u = 2/4 = 1/2$

⇒ $x = 1/u = 2$

∴ $x = 2$

So, the solution of the pair of equations given is x=2 and y =2.

9. x + y/2 = 4

2y + x/3 = 5

Solution:

The given pair of equations are

$x + y/2 = 4$ ……………………. (i)

$2y + x/3 = 5$……………………. (ii)

From (i), we get

$x + y/2 = 4$

⇒ $2x + y = 8$ [After taking LCM]

⇒ $y = 8 – 2x$ …..(iv)

From (ii), we get

$x + 6y = 15$ ……………… (iii) [After taking LCM]

Substituting y in (iii), we get

$x + 6(8 – 2x) = 15$

⇒ $x + 48 – 12x = 15$

⇒ $-11x = 15 – 48$

⇒ $-11x = -33$

⇒ $x = 3$

Putting x = 3 in (iv), we get

$y = 8 – (2×3)$

∴ $y = 8 – 6 = 2$

Hence, the solutions of the given system of the equation are $x = 3$ and $y = 2$, respectively.

10. $x + 2y = 3/2$

$2x + y = 3/2$

Solution:

The given pair of equations are

$x + 2y = 3/2$ …………………. (i)

$2x + y = 3/2$…………………… (ii)

Let us eliminate y from the given equations. The coefficients of y in the given equations are 2 and 1, respectively. The L.C.M of 2 and 1 is 2. So, we make the coefficient of y equal to 2 in the two equations.

Multiplying equation (i)x1 and (ii)x2 ⇒

$x + 2y = 3/2$ ………………………. (iii)

$4x + 2y = 3$ ……………………………………………………. (iv)

Subtracting equation (iii) from (iv),

$(4x – x) + (2y-2y) = 3x = 3 – (3/2)$

⇒ $3x = 3/2$

⇒ $x = 1/2$

Putting $x = 1/2$ in equation (iv),

$4(1/2) + 2y = 3$

⇒ $2 + 2y = 3$

∴ $y= 1/2$

The solution of the system of equations is $x = 1/2$ and $y = 1/2$

11. $\sqrt{2}x – \sqrt{3}y = 0$

$\sqrt{3}x − \sqrt{8}y = 0$

Solution:

The given pair of equations are

$\sqrt{2}x - \sqrt{3}y = 0$……………………….. (i)

$\sqrt{3}x - \sqrt{8}y = 0$……………………….. (ii)

From equation (i),

$x = \sqrt{(3/2)}y$ ……………..(iii)

Substituting this value in equation (ii), we obtain

$\sqrt{3}x - \sqrt{8}y = 0$

$\Rightarrow \sqrt{3}(\sqrt{(3/2)}y) - \sqrt{8}y = 0$

$\Rightarrow (3/\sqrt{2})y - \sqrt{8}y = 0$

$\Rightarrow 3y - 4y = 0$

$\Rightarrow y = 0$

Now, substituting y in equation (iii), we obtain

$\Rightarrow x=0$

Thus, the value of x and y obtained are 0 and 0, respectively.

12. 3x – (y + 7)/11 + 2 = 10

2y + (x + 11)/7 = 10

Solution:

The given pair of equations are

$3x - (y + 7)/11 + 2 = 10$……………….. (i)

$2y + (x + 11)/7 = 10$…………………….. (ii)

From equation (i),

$33x - y - 7 + 22 = (10 \times 11)$ [After taking LCM]

$\Rightarrow 33x - y + 15 = 110$

⇒ $33x + 15 – 110 = y$

⇒ $y = 33x – 95$………. (iv)

From equation (ii),

$14 + x + 11 = (10 \times 7)$ [After taking LCM]

⇒ $14y + x + 11 = 70$

⇒ $14y + x = 70 – 11$

⇒ $14y + x = 59$ …………………….. (iii)

Substituting (iv) in (iii), we get

$14 (33x – 95) + x = 59$

⇒ $462x – 1330 + x = 59$

⇒ $463x = 1389$

⇒ $x = 3$

Putting $x = 3$ in (iii), we get

⇒ $y = 33(3) – 95$

∴ $y= 4$

The solution for the given pair of equations is $x = 3$ and $y = 4$, respectively.

13. $2x – (3/y) = 9$

$3x + (7/y) = 2$,$y \neq 0$

Solution:

The given pair of equations are

$2x – (3/y) = 9$……………………………. (i)

$3x + (7/y) = 2$…………………………… (ii)

Substituting $1/y = u$, the above equations become

$2x – 3u = 9$ ………………………..(iii)

$3x + 7u = 2$………………………..(iv)

From (iii)

$2x = 9 + 3u$

⇒ $x = (9+3u)/2$

Substituting the value of x from above in equation (iv), we get

$3[(9+3u)/2] + 7u = 2$

⇒ $27 + 9u + 14u = (2 \times 2)$

⇒ $27 + 23u = 4$

⇒ $23u = -23$

⇒ $u = -1$

So, $y = 1/u = -1$

And putting $u = -1$ in $x = (9 + 3u)/2$, we get

⇒ $x = [9 + 3(-1)]/2 = 6/2$

∴ $x = 3$

The solutions of the pair of equations given are $y = 3$ and $x = -1$, respectively.

14. 0.5x + 0.7y = 0.74

0.3x + 0.5y = 0.5

Solution:

The given pair of equations are

$0.5x + 0.7y = 0.74$……………………… (i)

$0.3x – 0.5y = 0.5$ ………………………….. (ii)

Now, let's multiply LHS and RHS by 100 for both (i) and (ii) to make integral coefficients and constants.

(i) x100 ⇒

$50x + 70y = 74$ ……………………….. (iii)

(ii) x100 ⇒

$30x + 50y = 50$ …………………………… (iv)

From (iii),

$50x = 74 – 70y$

$x = (74−70y)/ 50$ ……………………………… (v)

Now, substituting x in equation (iv), we get

$30[(74−70y)/ 50] + 50y = 50$

⇒ $222 – 210y + 250y = 250$ [After taking LCM]

⇒ $40y = 28$

⇒ $y = 0.7$

Now, by putting the value of y in the equation (v), we get

⇒ $x = [74 − 70(0.7)]/ 50=0$

⇒ $x =25/ 50 = 1/2$

∴ $x = 0.5$

Thus, the values of x and y so obtained are 0.5 and 0.7, respectively.

15. $1/(7x) + 1/(6y) = 3$

$1/(2x) – 1/(3y) = 5$

Solution:

The given pair of equations are

$1/(7x) + 1/(6y) = 3$………………………….. (i)

$1/(2x) – 1/(3y) = 5$……………………………. (ii)

Multiplying (ii) by 1/2, we get

$1/(4x) – 1/(6y) = 52$……………………………. (iii)

Now, solving equations (i) and (iii),

$1/(7x) + 1/(6y) = 3$………………………….. (i)

$1/(4x) – 1/(6y) = 5/2$……………………………. (iii)

Adding (i) + (iii), we get

$1/x(1/7 + 1/4) = 3 + 5/2$

$\Rightarrow 1/x(11/28) = 11/2$

$\Rightarrow x = 1/14$

Using $x =1/ 14$, we get, in (i)

$1/[7(1/14)] + 1/(6y) = 3$

$\Rightarrow 2 + 1/(6y)=3$

$\Rightarrow 1/(6y) = 1$

$\Rightarrow y = 1/6$

The solution for the given pair of equations is $x=1/14$ and $y=1/6$, respectively.

16. $1/(2x) + 1/(3y) = 2$

$1/(3x) + 1/(2y) = 13/6$

Solution:

Let $1/x = u$ and $1/y = v$,

So, the given equations become

$u/2 + v/3 = 2$ ………………(i)

$u/3 + v/2 = 13/6$ ……………(ii)

From (i), we get

$u/2 + v/3 = 2$

$\Rightarrow 3u + 2v = 12$

$\Rightarrow u = (12 – 2v)/3$ …………(iii)

Using (iii) in (ii),

[(12 – 2v)/3]/3 + v/2 = 13/6

⇒ (12 – 2v)/9 + v/2 = 13/6

⇒ 24 – 4v + 9v = (13/6) x 18 [after taking LCM]

⇒ 24 + 5v = 39

⇒ 5v = 15

⇒ v = 3

Substituting v in (iii),

u = (12 – 2(3))/3

⇒ u = 2

Thus, x = 1/u ⇒ x = 1/2 and

y = 1/v ⇒ y = 1/3

The solution for the given pair of equations is x = 1/2 and y = 1/3, respectively.

17. 15/u + 2/v = 17

1/u + 1/v = 36/5

Solution:

Let 1/x = u and 1/y = v

So, the given equations become

15x + 2y = 17 ………………………….. (i)

x + y = 36/5………………………. (ii)

From equation (i), we get

2y = 17 – 15x

=y = (17 − 15x)/ 2 …………………. (iii)

Substituting (iii) in equation (ii), we get

$= x + (17 - 15x)/ 2 = 36/5$

$2x + 17 – 15x = (36 \times 2)/ 5$ [after taking LCM]

$-13x = 72/5 – 17$

$= -13x = -13/5$

$\Rightarrow x = 1/5$

$\Rightarrow u = 1/x = 5$

Putting $x = 1/5$in equation (ii), we get

$1/5 + y = 36/5$

$\Rightarrow y = 7$

$\Rightarrow v = 1/y = 1/7$

The solutions of the pair of equations given are $u = 5$ and $v = 1/7$, respectively.

18. $3/x – 1/y = -9$

$2/x + 3/y = 5$

Solution:

Let $1/x = u$ and $1/y = v$

So, the given equations become

$3u – v = -9$…………………..(i)

$2u + 3v = 5$ ……………………….(ii)

Multiplying equation (i) x 3 and (ii) x 1, we get

$9u – 3v = -27$ ………………………….. (iii)

$2u + 3v = 5$ ……………………………… (iv)

Adding equations (iii) and (iv), we get

$9u + 2u – 3v + 3v = -27 + 5$

$\Rightarrow 11u = -22$

⇒ u = -2

Now putting u =-2 in equation (iv), we get

2(-2) + 3v = 5

⇒ 3v = 9

⇒ v = 3

Hence, x = 1/u = −1/2 and,

y = 1/v = 1/3

19. 2/x + 5/y = 1

60/x + 40/y = 19

Solution:

Let 1/x = u and 1/y = v

So, the given equations become

2u + 5v = 1…………………..(i)

60u + 40v = 19 ……………………….(ii)

Multiplying equation (i) x 8 and (ii) x 1, we get

16u + 40v = 8 ………………………….. (iii)

60u + 40v = 19 ……………………………… (iv)

Subtracting equation (iii) from (iv), we get

60u – 16u + 40v – 40v = 19 – 8

⇒ 44u = 11

⇒ u = 1/4

Now putting u = 1/4 in equation (iv), we get

60(1/4) + 40v = 19

⇒ 15 + 40v = 19

⇒ $v = 4/40 = 1/10$

Hence, $x = 1/u = 4$ and

$y = 1/v = 10$

20. $1/(5x) + 1/(6y) = 12$

$1/(3x) – 3/(7y) = 8$

Solution:

Let $1/x = u$ and $1/y = v$

So, the given equations become

$u/5 + v/6 = 12$…………………..(i)

$u/3 – 3v/7 = 8$………………………(ii)

Taking LCM for both equations, we get

$6u + 5v = 360$………. (iii)

$7u – 9v = 168$……….. (iv)

Subtracting (iii) from (iv),

$7u – 9v – (6u + 5v) = 168 – 360$

⇒ $u – 14v = -192$

⇒ $u = (14v – 192)$………. (v)

Using (v) in equation (iii), we get

$6(14v – 192) + 5v = 360$

⇒ $84v -1152 + 5v = 360$

⇒ $89v = 1512$

⇒ $v = 1512/89$

⇒ $y = 1/v = 89/1512$

Now, substituting v in equation (v), we find u.

u = 14 x (1512/89) – 192

⇒ u = 4080/89

⇒ x = 1/u = 89/ 4080

Hence, the solution for the given system of equations is x = 89/4080 and y = 89/ 1512.

21. 4/x + 3y = 14

3/x – 4y = 23

Solution:

Taking 1/x = u, the given equations become

4u + 3y = 14…………………….. (i)

3u – 4y = 23…………………….. (ii)

Adding (i) and (ii), we get

4u + 3y + 3u – 4y = 14 + 23

⇒ 7u – y = 37

⇒ y = 7u – 37……………………… (iii)

Using (iii) in (i),

4u + 3(7u – 37) = 14

⇒ 4u + 21u – 111 = 14

⇒ 25u = 125

⇒ u = 5

⇒ x = 1/u = 1/5

Putting u= 5 in (iii), we find y

y = 7(5) – 37

⇒ y = -2

Hence, the solution for the given system of equations is x = 1/5 and y = -2.

22. 4/x + 5y = 7

3/x + 4y = 5

Solution:

Taking 1/x = u, the given equations become

4u + 5y = 7…………………….. (i)

3u + 4y = 5…………………….. (ii)

Subtracting (ii) from (i), we get

4u + 5y – (3u + 4y) = 7 – 5

⇒ u + y = 2

⇒ u = 2 – y……………………… (iii)

Using (iii) in (i),

4(2 – y) + 5y = 7

⇒ 8 – 4y + 5y = 7

⇒ y = -1

Putting y = -1 in (iii), we find u.

u = 2 – (-1)

⇒ u = 3

⇒ x = 1/u = 1/3

Hence, the solution for the given system of equations is x = 1/3 and y = -1.

23. 2/x + 3/y = 13

5/x – 4/y = -2

Solution:

Let 1/x = u and 1/y = v

So, the given equations become

$2u + 3v = 13$………………….. (i)

$5u – 4v = -2$ ………………………. (ii)

Adding equations (i) and (ii), we get

$2u + 3v + 5u – 4v = 13 – 2$

⇒ $7u – v = 11$

⇒ $v = 7u – 11$…….. (iii)

Using (iii) in (i), we get

$2u + 3(7u – 11) = 13$

⇒ $2u + 21u – 33 = 13$

⇒ $23u = 46$

⇒ $u = 2$

Substituting $u = 2$ in (iii), we find v.

$v = 7(2) – 11$

⇒ $v = 3$

Hence, $x = 1/u = 1/2$ and,

$y = 1/v = 1/3$

24. $2/x + 3/y = 2$

$4/x – 9/y = -1$

Solution:

Let $1/\sqrt{x} = u$ and $1/\sqrt{y} = v$,

So, the given equations become

$2u + 3v = 2$………………….. (i)

$4u – 9v = -1$ ………………………. (ii)

Multiplying (ii) by 3 and

Adding equations (i) and (ii)x3, we get

$6u + 9v + 4u – 9v = 6 – 1$

$\Rightarrow 10u = 5$

$\Rightarrow u = 1/2$

Substituting $u = 1/2$ in (i), we find v

$2(1/2) + 3v = 2$

$\Rightarrow 3v = 2 – 1$

$\Rightarrow v = 1/3$

Since, $1/\sqrt{x} = u$ we get $x = 1/u^2$

$\Rightarrow x = 1/(1/2)^2 = 4$

And,

$1/\sqrt{y} = v$ $y = 1/v^2$

$\Rightarrow y = 1/(1/3)^2 = 9$

Hence, the solution is $x = 4$ and $y = 9$.

25. (x + y)/xy = 2

(x – y)/xy = 6

Solution:

The given pair of equations are

$(x + y)/xy = 2 \Rightarrow 1/y + 1/x = 2$……. (i)

$(x – y)/xy = 6 \Rightarrow 1/y – 1/x = 6$………(ii)

Let $1/x = u$ and $1/y = v$, so the equations (i) and (ii) become

$v + u = 2$……. (iii)

$v – u = 6$……..(iv)

Adding (iii) and (iv), we get

$2v = 8$

$\Rightarrow v = 4$

$\Rightarrow y = 1/v = 1/4$

Substituting v = 4 in (iii) to find x,

$4 + u = 2$

$\Rightarrow u = -2$

$\Rightarrow x = 1/u = -1/2$

Hence, the solution is x = -1/2 and y = 1/4.

26. 2/x + 3/y = 9/xy

4/x + 9/y = 21/xy

Solution:

Taking LCM for both the given equations, we have

$(2y + 3x)/ xy = 9/xy \Rightarrow 3x + 2y = 9$………. (i)

$(4y + 9x)/ xy = 21/xy \Rightarrow 9x + 4y = 21$………(ii)

Performing (ii) – (i)x2⇒

$9x + 4y – 2(3x + 2y) = 21 – (9×2)$

$\Rightarrow 3x = 3$

$\Rightarrow x = 1$

Using x = 1 in (i), we find y

$3(1) + 2y = 9$

$\Rightarrow y = 6/2$

$\Rightarrow y = 3$

Thus, the solution for the given set of equations is x = 1 and y = 3.

Benefits of Solving RD Sharma Solutions Class 10 Maths Chapter 3 Exercise 3.3

Solving RD Sharma's Class 10 Maths Chapter 3, Exercise 3.3 on Pair of Linear Equations in Two Variables offers multiple benefits:

Foundation in Algebra: Builds a strong base for understanding algebraic methods, essential for higher mathematics.

Problem-Solving Skills: Develops critical thinking by using substitution, elimination, and cross-multiplication techniques.

Real-World Application: Helps students model and solve real-life problems involving relationships between two variables, such as financial calculations, distances, and rates.

Competitive Exam Preparation: Enhances accuracy and speed, useful for exams.

Logical Thinking: Strengthens analytical abilities, essential for advanced studies in science and engineering.