RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2: The academic team of Physics Wallah has produced a comprehensive solution for Chapter 3 of the textbook RS Aggarwal Class 10 Linear Equations in Two Variables. The RS Aggarwal class 10 solution for chapter-3 Linear Equations in Two Variables Exercise-3B is uploaded for reference only; do not copy the solutions. Before going through the solution of chapter 3 Linear Equations in Two Variables Exercise 3 B, one must have a clear understanding of chapter 3 Linear Equations in Two Variables.

Read the theory of Chapter 3 Linear Equations in Two Variables and then try to solve all numerical of exercise-3B. It is strongly advised that students in class 10 utilize the NCERT textbook to solve numerical problems and refer to the NCERT solutions for maths in class 10.

RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2 Overview

RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2 focuses on linear equations in two variables, offering clear and detailed explanations for each problem in the exercise. These solutions are designed to aid students in understanding the concepts thoroughly through step-by-step guidance.

They cover a variety of problems, helping students practice and consolidate their knowledge effectively. The solutions ensure accuracy and reliability, aligning with the latest CBSE syllabus and exam patterns. They serve as an invaluable resource for both classroom learning and self-study, providing comprehensive support to enhance students' problem-solving skills and preparation for exams.

RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2

Below we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2 for the ease of the students –

Question 1.

Solution:

We have,

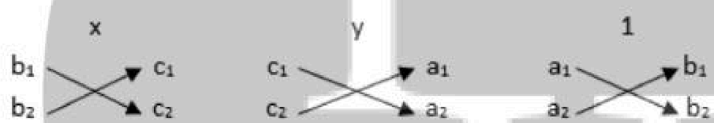
x + 2y + 1 = 0 …(i)

2x – 3y – 12 = 0 …(ii)

From equation (i), we get $a_1 = 1$, $b_1 = 2$ and $c_1 = 1$

And from equation (ii), we get $a_2 = 2$, $b_2 = -3$ and $c_2 = -12$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$\Rightarrow \frac{x}{[2\times(-12)-(-3)\times1]} = \frac{y}{[1\times2-(-12)\times1]} = \frac{1}{[1\times(-3)-2\times2]}$

$\Rightarrow \frac{x}{-24+3} = \frac{y}{2+12} = \frac{1}{-3-4}$

$\Rightarrow \frac{x}{-21} = \frac{y}{14} = \frac{1}{-7}$

$\Rightarrow \frac{x}{-21} = \frac{1}{-7}$ and $\frac{y}{14} = \frac{1}{-7}$

$\Rightarrow x = \frac{21}{7}$ and $y = \frac{-14}{7}$

$\Rightarrow$ x = 3 and y = - 2

Question 2.

Solution:

We have,

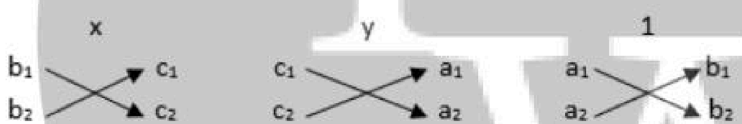
$3x - 2y + 3 = 0$ …(i)

$4x + 3y - 47 = 0$ …(ii)

From equation (i), we get $a_1 = 3$, $b_1 = -2$ and $c_1 = 3$

And from equation (ii), we get $a_2 = 4$, $b_2 = 3$ and $c_2 = -47$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[(-2)\times(-47)-3\times3]} = \frac{y}{[3\times4-(-47)\times3]} = \frac{1}{[3\times3-4\times(-2)]}$$

$$\Rightarrow \frac{x}{94-9} = \frac{y}{12+141} = \frac{1}{9+8}$$

$$\Rightarrow \frac{x}{85} = \frac{y}{153} = \frac{1}{17}$$

$\Rightarrow \frac{x}{85} = \frac{1}{17}$ and $\frac{y}{153} = \frac{1}{17}$

$\Rightarrow x = \frac{85}{17}$ and $y = \frac{153}{17}$

Question 3

Solution:

We have,

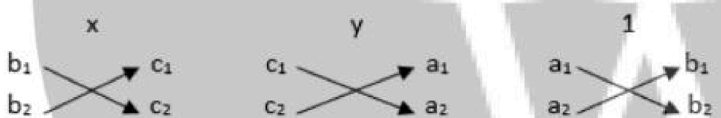
6x – 5y – 16 = 0 …(i)

7x – 13y + 10 = 0 …(ii)

From equation (i), we get $a_1 = 6$, $b_1 = -5$ and $c_1 = -16$

And from equation (ii), we get $a_2 = 7$, $b_2 = -13$ and $c_2 = 10$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[(-5)\times 10 - (-13)\times(-16)]} = \frac{y}{[(-16)\times 7 - 10\times 6]} = \frac{1}{[6\times(-13) - 7\times(-5)]}$$

$$\Rightarrow \frac{x}{-50-208} = \frac{y}{-112-60} = \frac{1}{-78+35}$$

$$\Rightarrow \frac{x}{-258} = \frac{y}{-172} = \frac{1}{-43}$$

$$\Rightarrow \frac{x}{-258} = \frac{1}{-43} \text{ and } \frac{y}{-172} = \frac{1}{-43}$$

$\Rightarrow x = \frac{-258}{-43}$ and $y = \frac{-172}{-43}$

$\Rightarrow$ x = 6 and y = 4

Thus, x = 6, y = 4

Question 4.

Solution:

We have,

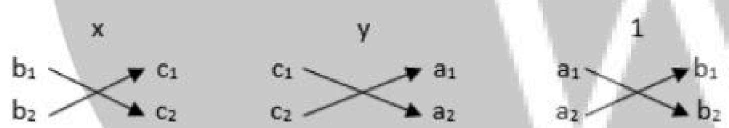
3x + 2y + 25 = 0 …(i)

2x + y + 10 = 0 …(ii)

From equation (i), we get $a_1 = 3$, $b_1 = 2$ and $c_1 = 25$

And from equation (ii), we get $a_2 = 2$, $b_2 = 1$ and $c_2 = 10$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[2\times10-1\times25]} = \frac{y}{[25\times2-10\times3]} = \frac{1}{[3\times1-2\times2]}$$

$$\Rightarrow \frac{x}{20-25} = \frac{y}{50-30} = \frac{1}{3-4}$$

$$\Rightarrow \frac{x}{-5} = \frac{y}{20} = \frac{1}{-1}$$

$\Rightarrow \frac{x}{-5} = -1$ and $\frac{y}{20} = -1$

$\Rightarrow x = 5$ and $y = -20$

Thus, $x = 5$, $y = -20$

Question 5.

Solution:

We have,

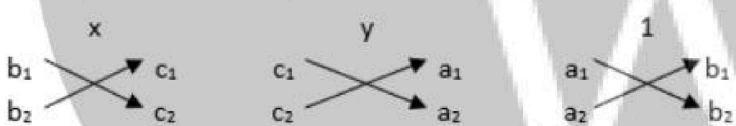
$2x + 5y - 1 = 0$ ...(i)

$2x + 3y - 3 = 0$ ...(ii)

From equation (i), we get $a_1 = 2$, $b_1 = 5$ and $c_1 = -1$

And from equation (ii), we get $a_2 = 2$, $b_2 = 3$ and $c_2 = -3$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$\Rightarrow \frac{x}{[5\times(-3)-3\times(-1)]} = \frac{y}{[(-1)\times2-(-3)\times2]} = \frac{1}{[2\times3-2\times5]}$

$\Rightarrow \frac{x}{-15+3} = \frac{y}{-2+6} = \frac{1}{6-10}$

$\Rightarrow \frac{x}{-12} = \frac{y}{4} = \frac{1}{-4}$

$\Rightarrow \frac{x}{-12} = \frac{1}{-4}$ and $\frac{y}{4} = \frac{1}{-4}$

$\Rightarrow x = \frac{-12}{-4}$ and $y = \frac{4}{-4}$

⇒ x = 3 and y = - 1

Thus, x = 3, y = - 1

Question 6.

Solution:

We have,

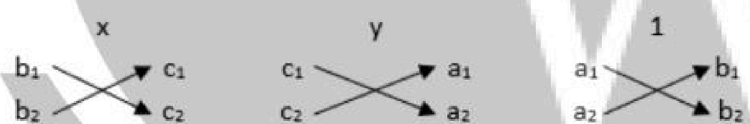
2x + y – 35 = 0 …(i)

3x + 4y – 65 = 0 …(ii)

From equation (i), we get $a_1 = 2$, $b_1 = 1$ and $c_1 = -35$

And from equation (ii), we get $a_2 = 3$, $b_2 = 4$ and $c_2 = -65$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[1\times(-65)-4\times(-35)]} = \frac{y}{[(-35)\times3-(-65)\times2]} = \frac{1}{[2\times4-3\times1]}$$

$$\Rightarrow \frac{x}{-65+140} = \frac{y}{-105+130} = \frac{1}{8-3}$$

Question 7.

Solution:

We have,

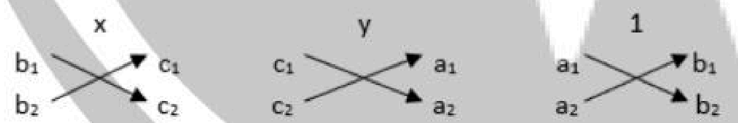
$7x - 2y - 3 = 0$ …(i)

$22x - 3y - 16 = 0$ …(ii)

From equation (i), we get $a_1 = 7$, $b_1 = -2$ and $c_1 = -3$

And from equation (ii), we get $a_2 = 22$, $b_2 = -3$ and $c_2 = -16$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[(-2)\times(-16)-(-3)\times(-3)]} = \frac{y}{[(-3)\times 22-(-16)\times 7]} = \frac{1}{[7\times(-3)-22\times(-2)]}$$

$\Rightarrow \frac{x}{32-9} = \frac{y}{-66+112} = \frac{1}{-21+44}$

$\Rightarrow \frac{x}{23} = \frac{y}{46} = \frac{1}{23}$

$\Rightarrow \frac{x}{23} = \frac{1}{23}$ and $\frac{y}{46} = \frac{1}{23}$

$\Rightarrow x = \frac{23}{23}$ and $y = \frac{46}{23}$

⇒ x = 1 and y = 2

Thus, x = 1, y = 2

Question 8.

$\frac{x}{6} + \frac{y}{15} = 4, \frac{x}{3} - \frac{y}{12} = \frac{19}{4}$

Solution:

We have,

$\frac{x}{6} + \frac{y}{15} = 4$ ...(i)

$\frac{x}{3} - \frac{y}{12} = \frac{19}{4}$ ...(ii)

By simplifying, we get

From equation (i), $\frac{5x+2y}{30} = 4$

⇒ 5x + 2y − 120 = 0 ...(iii)

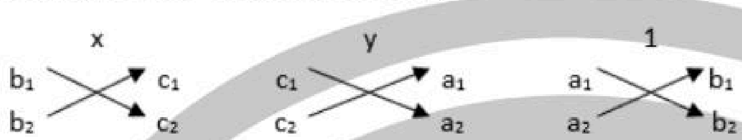
From equation (ii), $\frac{4x-y}{12} = \frac{19}{4}$

⇒ 4x − y − 57 = 0 ...(iv)

From equation (iii), we get $a_1 = 5$, $b_1 = 2$ and $c_1 = -120$

And from equation (ii) we get $a_2 = 4$, $b_2 = -1$ and $c_2 = -57$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[2\times(-57)-(-1)\times(-120)]} = \frac{y}{[(-120)\times4-(-57)\times5]} = \frac{1}{[5\times(-1)-4\times2]}$$

$$\Rightarrow \frac{x}{-114-120} = \frac{y}{-480+285} = \frac{1}{-5-8}$$

$$\Rightarrow \frac{x}{-234} = \frac{y}{-195} = \frac{1}{-13}$$

$$\Rightarrow \frac{x}{-234} = \frac{1}{-13} \text{ and } \frac{y}{-195} = \frac{1}{-13}$$

$$\Rightarrow x = \frac{-234}{-13} \text{ and } y = \frac{-195}{-13}$$

$\Rightarrow x = 18$ and $y = 15$

Thus, $x = 18$, $y = 15$

Question 9.

Solution:

We have,

$\frac{1}{x} + \frac{1}{y} = 7$ ...(i)

$\frac{2}{x} + \frac{3}{y} = 17$ ...(ii)

Let 1/x = p and 1/y = q. Now,

From equation (i), p + q = 7

⇒ p + q − 7 = 0 ...(iii)

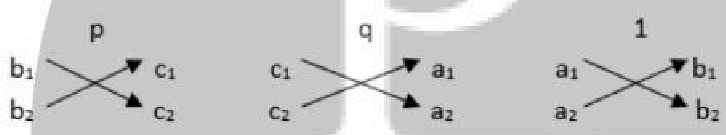
From equation (ii), 2p − 3q = 17

⇒ 2p + 3q − 17 = 0 ...(iv)

From equation (iii), we get $a_1 = 1$, $b_1 = 1$ and $c_1 = -7$

And from equation (iv), we get $a_2 = 2$, $b_2 = 3$ and $c_2 = -17$

Using cross multiplication,



$$\frac{p}{[b_1c_2 - b_2c_1]} = \frac{q}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$\Rightarrow \frac{p}{[1\times(-17)-3\times(-7)]} = \frac{q}{[(-7)\times2-(-17)\times1]} = \frac{1}{[1\times3-2\times1]}$

$\Rightarrow \frac{p}{-17+21} = \frac{q}{-14+17} = \frac{1}{3-2}$

$\Rightarrow \frac{p}{4} = \frac{q}{3} = \frac{1}{1}$

$\Rightarrow \frac{p}{4} = 1$ and $\frac{q}{3} = 1$

⇒ p = 4 and q = 3

⇒ x = 1/4 and y = 1/3 [∵ p = 1/x and q = 1/y]

Thus, x = 1/4, y = 1/3

Question 10.

Solution:

We have,

$\frac{5}{(x+y)} - \frac{2}{(x-y)} + 1 = 0$ ...(i)

$\frac{15}{(x+y)} + \frac{7}{(x-y)} - 10 = 0$ ...(ii)

Let 1/(x + y) = p and 1/(x - y) = q. Now,

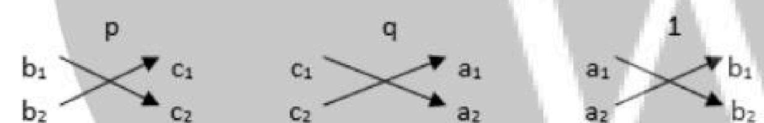
From equation (i), 5p – 2q + 1 = 0 ...(iii)

From equation (ii), 15p + 7q – 10 = 0 ...(iv)

From equation (iii), we get $a_1 = 5$, $b_1 = -2$ and $c_1 = 1$

And from equation (iv), we get $a_2 = 15$, $b_2 = 7$ and $c_2 = -10$

Using cross multiplication,



$$\frac{p}{[b_1c_2 - b_2c_1]} = \frac{q}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{p}{[(-2)\times(-10)-7\times1]} = \frac{q}{[1\times15-(-10)\times5]} = \frac{1}{[5\times7-15\times(-2)]}$$

$\Rightarrow \frac{x}{[1\times(-1)-(-1)\times(-5)]} = \frac{y}{[(-5)\times1-(-1)\times1]} = \frac{1}{[1\times(-1)-1\times1]}$

$\Rightarrow \frac{x}{-1-5} = \frac{y}{-5+1} = \frac{1}{-1-1}$

$\Rightarrow \frac{x}{-6} = \frac{y}{-4} = \frac{1}{-2}$

$\Rightarrow \frac{x}{-6} = \frac{1}{-2}$ and $\frac{y}{-4} = \frac{1}{-2}$

$\Rightarrow x = \frac{-6}{-2}$ and $y = \frac{-4}{-2}$

$\Rightarrow x = 3$ and $y = 2$

Thus, $x = 3$, $y = 2$

Question 11.

Solution:

We have,

$\frac{ax}{b} - \frac{by}{a} = a + b$ ...(i)

$ax - by = 2ab$ ...(ii)

By simplifying, we get

From equation (i),

$\frac{ax}{b} - \frac{by}{a} - (a + b) = 0$ ...(iii)

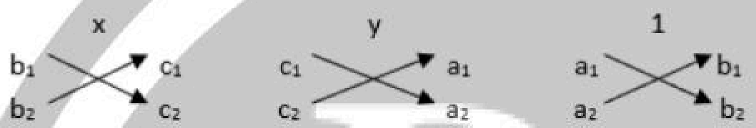
From equation (ii),

$ax - by - 2ab = 0$ ...(iv)

From equation (iii), we get $a_1 = a/b$, $b_1 = -b/a$ and $c_1 = -(a + b)$

And from equation (iv), we get $a_2 = a$, $b_2 = -b$ and $c_2 = -2ab$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[(\frac{-b}{a})\times(-2ab)-(-b)\times(-(a+b))]} = \frac{y}{[-(a+b)\times a-(-2ab)\times(\frac{a}{b})]} = \frac{1}{[(\frac{a}{b})\times(-b)-a\times(\frac{-b}{a})]}$$

$$\Rightarrow \frac{x}{2b^2-ab-b^2} = \frac{y}{-a^2-ab+2a^2} = \frac{1}{-a+b}$$

$$\Rightarrow \frac{x}{b^2-ab} = \frac{y}{a^2-ab} = \frac{1}{b-a}$$

$$\Rightarrow \frac{x}{b(b-a)} = \frac{1}{b-a} \text{ and } \frac{y}{a(a-b)} = \frac{1}{b-a}$$

$$\Rightarrow x = \frac{b(b-a)}{(b-a)} \text{ and } y = \frac{a(a-b)}{b-a}$$

$\Rightarrow x = b$ and $y = -a$

Thus, $x = b$, $y = -a$

Question 12.

Solution:

We have,

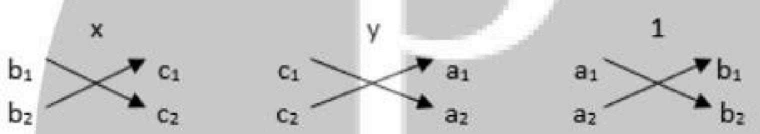
$2ax + 3by - (a + 2b) = 0$ …(i)

$3ax + 2by - (2a + b) = 0$ …(ii)

From equation (i), we get $a_1 = 2a$, $b_1 = 3b$ and $c_1 = -(a + 2b)$

And from equation (ii), we get $a_2 = 3a$, $b_2 = 2b$ and $c_2 = -(2a + b)$

Using cross multiplication,



$$\frac{x}{[b_1c_2 - b_2c_1]} = \frac{y}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{x}{[3b\times(-2a-b)-2b\times(-a-2b)]} = \frac{y}{[-(a+2b)\times3a-(-2a-b)\times2a]} = \frac{1}{[2a\times2b-3a\times3b]}$$

$$\Rightarrow \frac{x}{-6ab-3b^2+2ab+4b^2} = \frac{y}{-3a^2-6ab+4a^2+2ab} = \frac{1}{4ab-9ab}$$

$$\Rightarrow \frac{x}{b^2-4ab} = \frac{y}{a^2-4ab} = \frac{1}{-5ab}$$

$$\Rightarrow \frac{x}{b(b-4a)} = \frac{1}{-5ab} \text{ and } \frac{y}{a(a-4b)} = \frac{1}{-5ab}$$

$$\Rightarrow x = \frac{b(b-4a)}{-5ab} \text{ and } y = \frac{a(a-4b)}{-5ab}$$

$$\Rightarrow x = \frac{4a-b}{5a} \text{ and } y = \frac{4b-a}{5b}$$

Question 13.

Solution:

We have,

$\frac{a}{x} - \frac{b}{y} = 0$ …(i)

$\frac{ab^2}{x} - \frac{a^2b}{y} = a^2 + b^2$ …(ii)

Let 1/x = p and 1/y = q. Now,

From equation (i), $ap - bq = 0$

$\Rightarrow ap - bq + 0 = 0$ …(iii)

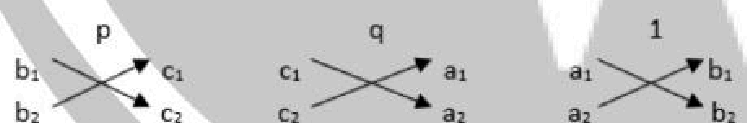
From equation (ii), $ab^2p - a^2bq = (a^2 + b^2)$

$\Rightarrow ab^2p - a^2bq - (a^2 + b^2) = 0$ …(iv)

From equation (iii), we get $a_1 = a$, $b_1 = -b$ and $c_1 = 0$

And from equation (iv), we get $a_2 = ab^2$, $b_2 = -a^2b$ and $c_2 = -(a^2 + b^2)$

Using cross multiplication,



$$\frac{p}{[b_1c_2 - b_2c_1]} = \frac{q}{[c_1a_2 - c_2a_1]} = \frac{1}{[a_1b_2 - a_2b_1]}$$

$$\Rightarrow \frac{p}{[(-b)\times(-a^2-b^2)-(-b^2)\times 0]} = \frac{q}{[0\times ab^2-(-a^2-b^2)\times a]} = \frac{1}{[a\times(-a^2b)-ab^2\times(-b)]}$$

$$\Rightarrow \frac{p}{(a^2b+b^3)} = \frac{q}{(a^3+ab^2)} = \frac{1}{-a^3b+ab^3}$$

$$\Rightarrow \frac{p}{b(a^2+b^2)} = \frac{q}{a(a^2+b^2)} = \frac{1}{ab(b^2+a^2)}$$

$$\Rightarrow \frac{p}{b(a^2+b^2)} = \frac{1}{ab(b^2+a^2)} \text{ and } \frac{q}{a(a^2+b^2)} = \frac{1}{ab(b^2+a^2)}$$

$$\Rightarrow p = \frac{b(a^2+b^2)}{ab(b^2+a^2)} \text{ and } q = \frac{a(a^2+b^2)}{ab(b^2+a^2)}$$

$\Rightarrow p = 1/a$ and $q = 1/b$

Thus, $x = a$, $y = b$ [$\because p = 1/x$ and $q = 1/y$]

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2

RS Aggarwal Solutions for Class 10 Maths Chapter 3 Exercise 3.2 on linear equations in two variables offer several benefits for students:

Structured Learning: The solutions provide a structured approach to solving problems, guiding students through each step clearly and logically.

Comprehensive Coverage: They cover all types of problems found in the exercise, ensuring that students are well-prepared for exams and assessments.

Clarity of Concepts: By following the solutions, students can grasp the underlying concepts of linear equations in two variables more effectively.

Practice and Revision: Solutions offer ample practice opportunities, helping students reinforce their understanding and gain confidence in the subject.

Problem-Solving Techniques: They teach problem-solving techniques specific to linear equations, which can be applied to similar problems in the future.

Exam Preparation: Since RS Aggarwal's solutions are aligned with the latest syllabus and exam patterns, they help students prepare thoroughly for exams.

Self-Study Resource: Students can use the solutions for self-study, allowing them to learn at their own pace and clarify doubts independently.

Step-by-Step Guidance: Each solution is presented step-by-step, making it easier for students to follow and understand the reasoning behind each step.

Accuracy and Reliability: RS Aggarwal solutions are known for their accuracy and reliability, ensuring that students get correct answers and learn the right methods.

Additional Resources: They often include additional tips, notes, and alternative methods, enriching the learning experience beyond the textbook.