Date: 28/9/2021

Q1. Champa went to a 'Sale' to purchase some pants and skirts. When her friends asked her how many of each she had bought, she answered, "The number of skirts is two less than twice the number of pants purchased. Also, the number of skirts is four less than four times the number of pants purchased". Help her friends to find how many pants and skirts Champa bought.

Q2. For which values of p does the pair of equations given below has unique solution?
$$4x + py + 8 = 0$$
$$2x + 2y + 2 = 0$$

Q3. For what values of k will the following pair of linear equations have infinitely many solutions?
$$kx + 3y - (k - 3) = 0$$
$$12x + ky - k = 0$$

Q4. Aftab tells his daughter, "Seven years ago, I was seven times as old as you were then. Also, three years from now, I shall be three times as old as you will be." (Isn't this interesting?) Represent this situation algebraically and graphically.

Q5. On comparing the ratios $\dfrac{a_1}{a_2}$, $\dfrac{b_1}{b_2}$ and $\dfrac{c_1}{c_2}$, find out whether the following pair of linear equations are consistent, or inconsistent.
$$\frac{3}{2}x + \frac{5}{3}y = 7; \quad 9x - 10y = 14$$

Q6. Solve the following pair of linear equations by the substitution method.
$$x + y = 14$$
$$x - y = 4$$

Q7. Solve the following pair of linear equations by the substitution method.
$$3x - y = 3$$
$$9x - 3y = 9$$

Q8. Let us take the example given in Section 3.1. Akhila goes to a fair with Rs. 20 and wants to have rides on the Giant Wheel and play Hoopla. Represent this situation algebraically and graphically (geometrically).

Q9. Romila went to a stationery shop and purchased 2 pencils and 3 erasers for Rs. 9. Her friend Sonali saw the new variety of pencils and erasers with Romila, and she also bought 4 pencils and 6 erasers of the same kind for Rs. 18. Represent this situation algebraically and graphically.

Q10. Two rails are represented by the equations $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$. Represent this situation geometrically.

Q11. Graphically, find whether the following pair of equations has no solution, unique solution or infinitely many solutions:
$$5x - 8y + 1 = 0 \qquad \text{... (i)}$$
$$3x - \frac{24}{5}y + \frac{3}{5} = 0 \qquad \text{... (ii)}$$

Q12. If the cost of 2 pencils and 3 erasers is Rs. 9 and the cost of 4 pencils and 6 erasers is Rs. 18. Find the cost of each pencil and each eraser.

Q13. Use elimination method to find all possible solutions of the following pair of linear equations:

$$2x + 3y = 8 \qquad \text{... (i)}$$
$$4x + 6y = 7 \qquad \text{... (ii)}$$

Q14. The coach of a cricket team buys 3 bats and 6 balls for Rs. 3900. Later, she buys another bat and 3 more balls of the same kind for Rs. 1300. Represent this situation algebraically and geometrically.

Q15. The cost of 2 kg of apples and 1 kg grapes on a day was found to be Rs. 160. After a month, the cost of 4 kg of apples and 2 kg of grapes is Rs. 300. Represent the situation algebraically and geometrically.

Q16. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out whether the lines representing the following pairs of linear equations intersect at a point, are parallel or coincident:

(i) $5x - 4y + 8 = 0$ (ii) $9x + 3y + 12 = 0$ (iii) $6x - 3y + 10 = 0$

      $7x + 6y - 9 = 0$ $18x + 6y + 24 = 0$ $2x - y + 9 = 0$

Q17. Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. Find the dimensions of the garden.

Q18. Given the linear equation $2x + 3y - 8 = 0$, write another linear equation in two variables such that the geometrical representation of the pair so formed is:

(i)   intersecting lines   (ii)   parallel lines   (iii)   coincident lines

Q19. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determinte the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

Q20. In a ΔABC, $\angle C = 3$, $\angle B = 2(\angle A + \angle B)$. Find the three angles.

Q21. Form the pair of linear equations in the following problems, and find their solution graphically. 10 students of Class X took part in a Mathematics quiz. If the number of girls is 4 more than the number of boys, find the number of boys and girls who took part in the quiz.

Q22. Form the pair of linear equations in the following problems, and find their solution graphically. 5 pencils and 7 pens together cost Rs. 50, whereas 7 pencils and 5 pens together cost Rs. 46. Find the cost of one pencil of one pencil and that of one pen.

Q23. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out whether the following pair of linear equations are consistent, or inconsistent.

(i) $3x + 2y = 5$; $2x - 3y = 7$ (ii) $2x - 3y = 8$; $4x - 6y = 9$

Q24. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out whether the following pair of linear equations are consistent, or inconsistent.

(i) $5x - 3y = 11$; $-10x + 6y = -22$ (ii) $\frac{4}{3}x + 2y = 8$; $2x + 3y = 12$

Q25. Which of the following pairs of linear equations are consistent/inconsistent? If consistent, obtain the solution graphically:

(i) $x + y = 5$, $2x + 2y = 10$ (ii) $x - y = 8$, $3x - 3y = 16$

Q26. Which of the following pairs of linear equations are consistent/inconsistent? If consistent, obtain the solution graphically:

(i) $2x + y - 6 = 0$, $4x - 2y - 4 = 0$ (ii) $2x - 2y - 2 = 0$, $4x - 4y - 5 = 0$

Q27. Solve the following pair of linear equations by the substitution method.

$$s - t = 3$$

$$\frac{s}{3} + \frac{t}{2} = 6$$

Q28. Solve the following pair of linear equations by the substitution method.

$$0.2x + 0.3y = 1.3$$

$$0.4x + 0.5y = 2.3$$

Q29. Solve the following pair of linear equations by the substitution method.

$$\sqrt{2}\,x + \sqrt{3}\,y = 0$$

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

Q30. For which values of a and b does the following pair of linear equations have an infinite number of solutions?

$$2x + 3y = 7$$

$$(a - b)\,x + (a + b)\,y = 3a + b - 2$$

Q31. For which value of k will the following pair of linear equations have no solution?

$$3x + y = 1$$

$$(2k - 1)\,x + (k - 1)\,y = 2k + 1$$

Q32. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{1}{2x} + \frac{1}{3y} = 2$$

$$\frac{1}{3x} + \frac{1}{2y} = \frac{13}{6}$$

Q33. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{4}{x} + 3y = 14$$

$$\frac{3}{x} - 4y = 23$$

Q34. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{7x - 2y}{xy} = 5$$

$$\frac{8x + 7y}{xy} = 15$$

Q35. Solve the following pair of linear equations:

$$px + qy = p - q$$

$$qx - py = p + q$$

Q36. Check graphically whether the pair of equations

$$x + 3y = 6 \qquad\qquad\qquad \text{... (i)}$$

and $\qquad\qquad\qquad 2x - 3y = 12 \qquad\qquad\qquad \text{... (ii)}$

Consistent. If so, solve them graphically.

Q37. Solve the following pair of equations by substitution method:

$$7x - 15y = 2 \qquad\qquad\qquad \text{... (i)}$$

$$x + 2y = 3 \qquad\qquad\qquad \text{... (ii)}$$

Q38. Aftab tells his daughter, "Seven years ago, I was seven times as old as you were then. Also, three years from now, I shall be three times as old as you will be." (Isn't this interesting?) Solve this situation by the method of substitution.

Q39. Two rails are represented by the equations $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$. Will the rails cross each other?

Q40. The ratio of incomes of two persons is 9 : 7 and the ratio of their expenditures is 4 : 3. If each of them manages to save Rs. 2000 per month, find the monthly incomes.

Q41. The sum of a two-digit number and the number obtained by reversing the digits is 66. If the digits of the number differ by 2, find the number. How many such numbers are there?

Q42. From a bus stand in Bangalore, if we buy 2 tickets to Malleswaram and 3 tickets to Yeshwanthpur, the total cost is Rs. 46; but if we buy 3 tickets to Malleswaram and 5 tickets to Yeshwanthpur the total cost is Rs. 74. Find the fares from the bus stand to Malleswaram, and to Yeshwanthpur.

Q43. Solve the pair of equations:
$$\frac{2}{x} + \frac{3}{y} = 13; \qquad \frac{5}{x} - \frac{4}{y} = -2$$

Q44. Solve the folloing pair of equations by reducing them to a pair of linear equations:
$$\frac{5}{x-1} + \frac{1}{y-2} = 2; \qquad \frac{5}{x-1} - \frac{3}{y-2} = 1$$

Q45. A boat goes 30 km upstream and 44 km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55 km down-stream. Determine the speed of the stream and that of the boat in still water.

Q46. Solve $2x + 3y = 11$ and $2x - 4y = -24$ and hence find the value of 'm' for which $y = mx + 3$.

Q47. The ages of two friends Ani and Biju differ by 3 years. Ani's father Dharam is twice as old as Ani and Biju is twice as old as his sister Cathy. The ages of Cathy and Dharam differ by 30 years. Find the ages of Ani and Biju.

Q48. One says, "Give me a hundred, friend! I shall then become twice as rich as your". The other replies, "If you give me ten, I shall be six times as rich as your". Tell me what is the amount of their (respective) capital? [From the Bijaganita of Bhaskara II]

[Hint: $x + 100 = 2(y - 100)$, $y + 10 = 6(x - 10)$]

Q49. A train covered a certain distance at a uniform speed. If the train would have been 10 km/h faster, it would have taken 2 hours less than the scheduled time. And, if the train were slower by 10 km/h, it would have taken 3 hours more than the scheduled time. Find the distance covered by the train.

Q50. Solve the following pair of linear equations by the substitution method.
$$\frac{3x}{2} - \frac{5y}{3} = -2$$
$$\frac{x}{3} + \frac{y}{2} = \frac{13}{6}$$

Q51. *ABCD* is a cyclic quadrilateral (see figure). Find the angles of the cyclic quadrilateral.
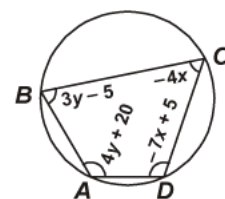
Q52. Draw the graphs of the equations $5x - y = 5$ and $3x - y = 3$. Determine the co-ordinates of the vertices of the triangle formed by these lines and the *y*-axis.

Q53. The students of a class are made to stand in rows. If 3 students are extra in a a row, there would be 1 row less. If 3 students are less in a row, there would be 2 rows more. Find the number of students in the class.

Q54. Form the pair of linear equations for the following problems and find their solution by substitution method.

The taxi charges in a city consist of a fixed charge together with the charge for the distance covered. For a distance of 10 km, the charge paid is Rs. 105 and for a journey of 15 km, the charge paid Rs. 155. What are the fixed charges and the charge per km? How much does a person have to pay for travelling a distance of 25 km?

Q55. Form the pair of linear equations for the following problems and find their solution by substitution method.

The larger of two supplementary angles exceeds the smaller by 18 degrees. Find them.

Q56. Form the pair of linear equations for the following problems and find their solution by substitution method.

The coach of a cricket team buys 7 bats and 6 balls for Rs. 3800. Latter, she buys 3 bats and 5 balls for Rs 1750. Find the cost of each bat and each ball.

Q57. Form the pair of linear equations for the following problems and find their solution by substitution method.

The difference between two numbers is 26 and one number is three times the other. Find them.

Q58. Form the pair of linear equations for the following problems and find their solution by substitution method.

A fraction becomes $\dfrac{9}{11}$, if 2 is added to both the numerator and the denominator. If 3, is added to both the numerator and the denominator it becomes $\dfrac{5}{6}$. Find the fraction.

Q59. From the pair of linear equations in the following problems, and find their solutions (if they exist) by the elimination method:

Five years ago, Nuri was thrice as old as Sonu. Ten years later, Nuri will be twice as old as Sonu. How old are Nuri and Sonu?

Q60. Form the pair of linear equations for the following problems and find their solution by substitution method.

Five years hence, the age of Jacob will be three times that of his son. Five years ago, Jacob's age was seven times that of his son. What are their present ages?

Q61. From the pair of linear equations in following problems, and find their solutions (if they exist) by the elimination method:

If we add 1 to the numerator and subtract 1 from the denominator, a fraction reduces to 1. It becomes $\dfrac{1}{2}$ if we only add 1 to the denominator. What is the fraction?

Q62. Formulate the following problems as a pair of equaions, and hence find their solution :

2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone to finish the work, and also that taken by 1 man alone.

Q63. Formulate the following problems as a pair of equaions, and hence find their solution :

Ritu can row downstrem 20 km in 2 hours, and upstream 4 km in 2 hours. Find her speed of rowing in still water an the speed of the current.

Q64. Solve the following pairs of equations by reducing them to a pair of linear equations:

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

$$2x + 4y = 5xy$$

Q65. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{5}{x-1} + \frac{1}{y-2} = 2$$

$$\frac{6}{x-1} - \frac{3}{y-2} = 1$$

Q66. Form the pair of linear equations in the following problems and find their solutions (if they exist) by any algebraic method:

A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.

Q67. Form the pair of linear equations in the following problems and find their solutions (if they exist) by any algebraic method:

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?

Q68. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$$

$$\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1$$

Q69. Form the pair of linear equations in the following problems and find their solutions (if they exist) by any algebraic method:

Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars.

Q70. Form the pair of linear equations in the following problems and find their solutions (if they exist) by any algebraic method:

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

Q71. Which of the following pairs of linear equations has unique solution, no solution, or infinitely many solutions. In case there is a unique solution, find it by using cross multiplication method.

(i) $x - 3y - 3 = 0$ (ii) $2x + y = 5$

     $3x - 9y - 2 = 0$ $3x + 2y = 8$

Q72. Which of the following pairs of linear equations has unique solution, no solution, or infinitely many solutions. In case there is a unique solution, find it by using cross multiplication method.

(i) $3x - 5y = 20$ (ii) $x - y - 7 = 0$

    $6x - 10y = 40$ $3x - 3y - 15 = 0$

Q73. Form the pair of linear equations in the following problems and find their solutions (if they exist) by any algebraic method:

A part of monthly hostel charges is fixed and the remaining depends on the number of days one has taken food in the mess. When a student A takes food for 20 days she 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 charges and the cost of food per day.

Q74. From the pair of linear equations in the following problems, and find their solutions (if they exist) by the elimination method:

A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Saritha paid Rs. 27 for a book kept for seven days, while Susy paid Rs. 21 for the book she kept for five days. Find the fixed charge and the charge for each extra day.

Q75. From the pair of linear equations in the following problems, and find their solutions (if they exist) by the elimination method:

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 of Rs 50 and Rs. 100 she received.

Q76. From the pair of linear equations in the following problems, and find their solutions (if they exist) by the elimination method:

The sum of the digits of a two-digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

Q77. Formulate the following problems as a pair of equaions, and hence find their solution:

Roohi travels 300 km to her home partly by train and partly by bus. She take 4 hours if she travels 60 km by train and the remaining by bus. If she travels 100 km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.

Q78. Solve the following pair of linear equations:
$$ax + by = c$$
$$bx + ay = 1 + c$$

Q79. Solve the following pair of linear equations:
$$\frac{x}{a} - \frac{y}{b} = 0$$
$$ax + by = a^2 + b^2$$

Q80. Solve the following pair of linear equations:
$$(a - b) x + (a + b) y = a^2 - 2ab - b^2$$
$$(a + b) (x + y) = a^2 + b^2$$

Q81. Solve the following pair of linear equations by the elimination method and the substitution method:
$$3x - 5y - 4 = 0 \quad \text{and} \quad 9x = 2y + 7$$

Q82. Solve the following pair of linear equations by the elimination method and the substitution method:
$$3x + 4y = 10 \quad \text{and} \quad 2x - 2y = 2$$

Q83. Solve the following pair of linear equations by the elimination method and the substitution method:
$$x + y = 5 \quad \text{and} \quad 2x - 3y = 4$$

Q84. Solve the following pair of linear equations by the substitution and cross-multiplication methods:
$$8x + 5y = 9$$
$$3x + 2y = 4$$

Q85. Solve the following pair of linear equations by the elimination method and the substitution method:

$$\frac{x}{2} + \frac{2y}{3} = -1 \quad \text{and} \quad x - \frac{y}{3} = 3$$

Q86. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{10}{x+y} + \frac{2}{x-y} = 4$$

$$\frac{15}{x+y} - \frac{5}{x-y} = -2$$

**Q87.** Solve the following pairs of equations by reducing them to a pair of linear equations:

$$\frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4}$$

$$\frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = \frac{-1}{8}$$

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S1. Pants purchased = 1

Skirt purchased = 0.

S2. Except 4, for all values of p, the given pair of equation will have unique solution.

S3. $k = 6$, It has infinitely many solution.

S4. Algebraically the two situations can be represented as follows:

$x - 7y + 42 = 0$; $x - 3y - 6 = 0$, where x and y are respectively the present ages of Aftab and his daughter. To represent the situations graphically, you can draw the graphs of these two linear equations.

S5. Consistent

S6. $x = 9$, $y = 5$

S7. $y = 3x - 3$

S8. The pair of equations formed is $y = \dfrac{1}{2}x$
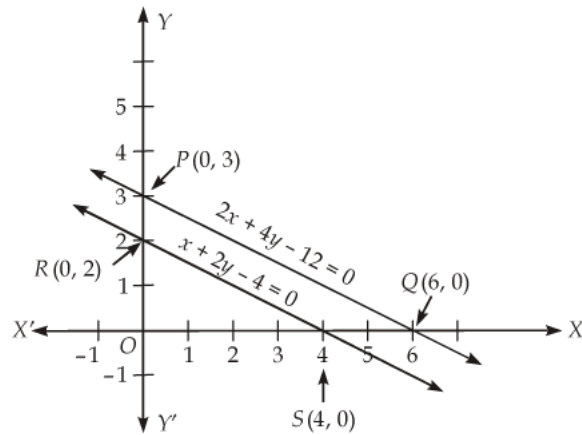
$$x - 2y = 0$$
$$3x + 4y = 20$$

Graphically representation.
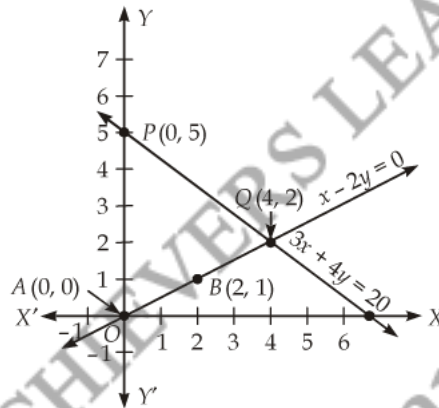
S9. Let cost of 1 pencil = Rs. x and cost of 1 eraser = Rs. y

A.T.Q. $2x + 3y = 9$ and $4x + 6y = 18$.

Graphically representation.
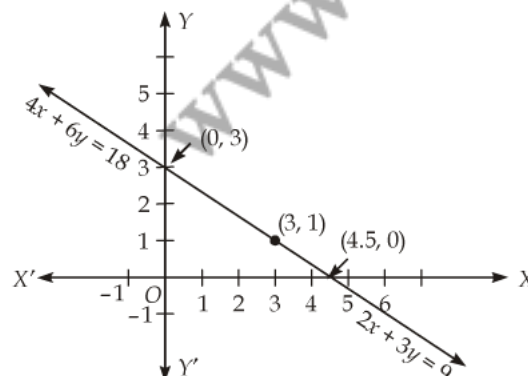
S10. Graphically representation.

S11. Plot few points on the graph and verify it yourself. Equation (i) and (ii) have infinitely many solution.

S12. We cannot get any specific value of x. It has infinitely many solutions.

S13. The pair of equation has no solution.

S14. Algebraically the two situations can be represented as follows:

$x + 2y = 1300$; $x + 3y = 1300$, where x and y are respectively the costs (in Rs.) of a bat and a ball. To represent the situations graphically, you can draw the graphs of these two linear equations.

S15. Algebraically the two situations can be represented as follows:

$2x + y = 160$; $4x + 3y = 300$, where x and y are respectively the prices (in Rs. per kg) of apples and grapes. To present the situations graphically, you can draw the graphs of these two linear equations.

S16. (i)   Intersect at a point   (ii)   Coincident   (iii)   Parallel

S17. Length = 20 m and breadth = 16 m.

S18. One possible answer for the three parts.

(i) $3x + 2y - 7 = 0$ (ii) $2x + 3y - 12 = 0$ (iii) $4x + 6y - 16 = 0$

S19. Vertices of the triangle are $(-1, 0)$, $(4, 0)$ and $(2, 3)$.

S20. $\angle A = 20°$, $\angle B = 40°$, $\angle C = 120°$.

S21. Required pair of linear equations is

$$x + y = 10; \quad x - y = 4,$$

where x is the number of girls and y is the number of boys.

To solve graphically draw the graphs of these equations on the same axes on graph paper.

Girls = 7,   Boys = 3.

S22. Required pair of linear equations is

$$5x + 7y = 50; \quad 7x + 5y = 46,$$

where x and y represent the cost (in Rs.) of a pencil and of a pen respectively.

To solve graphically draw the graphs of these equations on the same axes on graph paper.

Cost of one pencil = Rs. 3,   Cost of one pen = Rs. 5.

S23. (i)   Consistent   (ii)   Inconsistent

S24. (i)   Consistent   (ii)   Consistent

S25. (i) Consistent   (ii) Inconsistent

The solution of (i) above, is given by $y = 5 - x$, where x can take any value, *i.e.,* there are infinitely many solutions.

S26. (i) Consistent   (ii) Inconsistent

The solution of (i) above is $x = 2$, $y = 2$, *i.e.,* unique solution.

S27. $s = 9$, $t = 6$

S28. $x = 2$, $y = 3$

S29. $x = 0$, $y = 0$

S30. $a = 5$, $b = 1$

S31. $k = 2$

S32. $x = \dfrac{1}{2}$, $y = \dfrac{1}{3}$

S33. $x = \dfrac{1}{5}$, $y = -2$

S34. $x = 1$, $y = 1$

S35. $x = 1$, $y = -1$

S36. The given pair is consistent hence can be shown graphically.
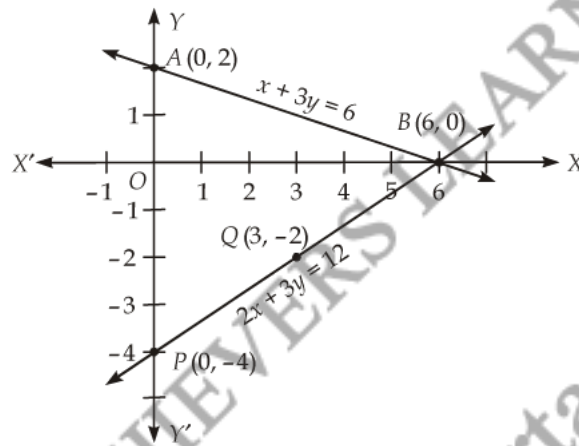
S37. $x = \dfrac{49}{29}$, $y = \dfrac{19}{29}$.

S38. Aftab age is 42 years, and his daughter age is 12 years.

S39. The equations do not have a common solution. So, the two rails will not cross each other.

S40. Monthly incomes of the persons are Rs. 18,000 and Rs. 14,000 respectively.

S41. There are two such numbers are 42 and 24.

S42. Fare from Bus stand in Bangalore to Malleswaram is Rs. 8.
Fare to Yeshwanthpur is Rs. 10.

S43. $x = \dfrac{1}{2}$, $y = \dfrac{1}{3}$.

S44. $x = 4$, $y = 5$.

S45. Speed of Boat in still water = 8 km/h.
Speed of the stream = 3 km/h.

S46. $x = -2$, $y = 5$; $m = -1$.

S47. Age of Ani is 19 years and age Biju is 16 years of age of Ani 21 years and age of Biju 24 years.

S48. Rs. 40, Rs. 170. Let the money with the first person (in Rs.) be x and the money with the seond person (in Rs.) be y.
$$x + 100 = 2 (y - 100), y + 10 = 6 (x - 10).$$

S49. 600 km.

S50. $x = 2$, $y = 3$

S51. $\angle A = 120°$, $\angle B = 70°$, $\angle C = 60°$, $\angle D = 110°$.

S52. Coordinates of the vertices of the triangle are (1, 0), (0, – 3), (0, – 5).

S53. 36.

S54. $x + 10y = 105$, $x + 15y = 155$, where x the fixed charge (in Rs.) and y is the charge (in Rs. per km); $x = 5$, $y = 10$; Rs. 255.

S55. $x - y = 18$, $x + y = 180$, where x and y are the measures of the two angles in degrees; $x = 99$, $y = 81$.

S56. $7x + 6y = 3800$, $3x + 5y = 1750$, where x and y are the costs (in Rs.) of one bat and one ball respectively; $x = 500$, $y = 50$.

S57. $x - y = 26$, $x = 3y$, where x and y are two numbers ($x > y$); $x = 39$, $y = 13$.

S58. $11x - 9y + 4 = 9$, $6x - 5y + 3 = 0$, where x and y are numerator and denominator of the fraction $\frac{7}{9}$ ($x = 7$, $y = 9$).

S59. $x - 3y + 10 = 0$, $x - 2y - 10 = 0$, where x and y are the ages (in years) of Nuri and Sonu respectively. Age of Nuri (x) = 50, age of Sonu (y) = 20.

S60. $x - 3y - 10 = 0$, $x - 7y + 30 = 0$, where x and y are the ages in years of Jacob and his son; $x = 40$, $y = 10$.

S61. $x - y + 2 = 0$, $2x - y - 1 = 0$, where x and y are the numerator and denominator of the fraction; $\frac{3}{5}$.

S62. $\frac{2}{n} + \frac{5}{m} = \frac{1}{4}$, $\frac{3}{n} + \frac{6}{m} = \frac{1}{3}$, where n and m are the number of days taken by 1 woman and 1 man to finish embroidery work; $n = 18$, $m = 36$.

S63. $u + v = 10$, $u - v = 2$, where u and v are respectively the speeds (in km/h) of rowing and current; $u = 6$, $v = 4$.

S64. $x = 1$, $y = 2$

S65. $x = 4$, $y = 5$

S66. $3x - y - 3 = 0$, $4x - y - 8 = 0$, where x and y are the numerator and denominator of the fraction; $\frac{5}{12}$.

S67. $3x - y = 40$, $2x - y = 25$, where x and y are the number of right answers and wrong answers respectively; 20.

S68. $x = 4$, $y = 9$

S69. $u - v = 20$, $u + v = 100$, where u and v are the speeds (in km/h) of the two cars; $u = 60$, $v = 40$.

S70. $3x - 5y - 6 = 0$, $2x + 3y - 61 = 0$, where x and y are respectively the length and breadth (in units) of the rectangle; Length $(x) = 17$, breadth $(y) = 9$.

S71. (i) No solution. (ii) Unique solution; $x = 2$, $y = 1$

S72. (i) Infinitely many solutions (ii) Unique solution; $x = 4$, $y = -1$

S73. $x + 20y = 1000$, $x + 26y = 1180$, where x is the fixed charges (in Rs.) and y is the charges (in Rs.) for food per day; $x = 400$, $y = 30$.

S74. $x + 4y = 27$, $x + 2y = 21$, where x is the fixed charge (in Rs.) and y is the additional charge (in Rs.) per day; $x = 15$, $y = 3$.

S75. $x + 2y = 40$, $x + y = 25$, where x and y are respectively the number of Rs. 50 and Rs. 100 notes; $x = 10$, $y = 15$.

S76. $x + y = 9$, $8x - y = 0$, where x and y are respectively the tens and units digits of the number; 18.

S77. $\dfrac{60}{u} + \dfrac{240}{v} = 4$, $\dfrac{100}{u} + \dfrac{200}{v} = \dfrac{25}{6}$, where u and v are respectively the speeds (in km/h) of the train and bus; $u = 60$, $v = 80$.

S78. $x = \dfrac{c(a-b) - b}{a^2 - b^2}$, $x = \dfrac{c(a-b) + a}{a^2 - b^2}$

S79. $x = a$, $y = b$

S80. $x = a + b$, $y = -\dfrac{2ab}{a+b}$

S81. $x = \dfrac{9}{13}$, $y = -\dfrac{5}{13}$

S82. $x = 2$, $y = 1$

S83. $x = \dfrac{19}{5}$, $y = \dfrac{6}{5}$

S84. $x = -2$, $y = 5$.

S85. $x = 2$, $y = -3$

S86. $x = 3$, $y = 2$

S87. $x = 1$, $y = 1$