

RG CLASSES

EDUCATING FOR BETTER FUTURE...

GRADE X

Question Bank (MATHEMATICS)

Chapter-3 Pair of linear equations in two variables

1 marks:

- If the system of equations $3x + y = 1$ and $(2k - 1)x + (k - 1)y = 2k + 1$ is inconsistent then k is
a) -1 b) 0 c) 1 d) 2
- The value of k for which the system of linear equations $x + 2y = 3$, $5x + ky + 7 = 0$ is inconsistent, is
a) $-14/3$ b) $2/5$ c) 5 d) 10
- The value of k for which the system of equations $x + y - 4 = 0$, $2x + ky = 3$ has no solution, is
a) -2 b) $\neq 2$ c) 3 d) 2
- For what value of k, the system of equations $kx + 3y = 1$, $12x + ky = 2$ has no solution
a) $k = -6$ b) $k \neq -6$ c) $k = 4$ d) $k = -4$
- The value of c for which the pair of equations $cx - y = 2$ and $6x - 2y = 3$ will have no solution, is
a) 3 b) -3 c) -12 d) 12
- For what value of p the system of equations have no solution
 $(2p - 1)x + (p - 1)y = 2p + 1$, $y + 3x - 1 = 0$
a) $p = 2$ b) $p \neq 2$ c) $p = 4$ d) $p \neq 4$
- For which value(s) of p, will the lines represented by the following pair of linear equations be parallel $3x - y - 5 = 0$ and $6x - 2y - p = 0$
a) All real values except 10 c) 10
b) $5/2$ d) $1/2$
- If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel then value of k is
a) $-5/4$ b) $2/5$ c) $15/4$ d) $3/2$
- The pair of equations $ax + 2y = 9$ & $3x + by = 18$ represent parallel lines, where a, b are integers if
a) $a = b$ b) $3a = 2b$ c) $2a = 3b$ d) $ab = 6$ [BOARD 2023]
- The pair of equations $2kx + 5y = 7$, $6x - 5y = 11$ has a unique solution, if
a) $k \neq -3$ b) $k \neq \frac{2}{3}$ c) $k \neq 5$ d) $k \neq \frac{2}{9}$
- Which of the following value of k should be selected so that the pair of equations $x + 2y = 5$ and $3x + ky + 15 = 0$ has a unique solution?
a) $k \neq 5$ b) $k \neq 6$ c) $k = 5$ d) $k = 6$

12. If the equations $kx - 2y = 3$ and $3x + y = 5$ represent two intersecting lines at unique point then the value of k is
 a) $k = -6$ b) $k \neq -6$ c) $k = 4$ d) $k \neq 4$

13. The value of k for which the pair of equations $kx - y = 2$ and $6x - 2y = 3$ has unique solution
 a) $k = 3$ b) $k \neq 3$ c) $k \neq 0$ d) $k = 0$

14. For what value of p does the pair of linear equations given below has unique solution $4x + py + 8 = 0$ and $2x + 2y + 2 = 0$
 a) $p = 1$ b) $p = 2$ c) $p \neq 4$ d) $p \neq 2$

15. The condition for the system of linear equations $ax + by = c$ & $lx + my = n$ to have a unique solution is
[BOARD 2023]
 a) $am \neq bl$ b) $al \neq bm$ c) $al = bm$ d) $am = bl$

16. For what value of k , the equations $3x - y + 8 = 0, 6x - ky = -16$ represent coincident lines
[BOARD 2023]
 a) $1/2$ b) $-1/2$ c) 2 d) -2

17. The value of k for which the pair of equations $kx = y + 2$ & $6x = 2y + 3$ has infinitely many solutions, is
[BOARD 2023]
 a) $k = 3$ b) $k = -3$ c) $k = 4$ d) doesn't exist

18. For what value of k , the equations $kx + y = k^2$ and $x + ky = 1$ have infinitely many solutions.
[BOARD 2024]
 a) 1 b) 2 c) 3 d) 4

19. The value of k for which the lines $5x + 7y = 3$ and $15x + 21y = k$ coincide is
 a) 9 b) 5 c) 7 d) 18

20. The value of k for which the lines represented by the following pair of linear equations are coincident is $2x + 3y + 7 = 0$ and $8x + 12y + k = 0$
 a) All real values except 14 c) 8
 b) 28 d) 14

21. For what value of k , the pair of linear equations $kx - 4y = 3, 6x - 12y = 9$ has an infinite number of solutions?
 a) $k = 2$ b) $k \neq 2$ c) $k \neq 3$ d) $k = 4$

22. One equation of a pair of dependent linear equation $-5x + 7y = 2$. The second equation can be
 a) $10x + 14y + 4 = 0$ c) $-10x - 14y + 4 = 0$
 b) $-10x + 14y + 4 = 0$ d) $10x - 14y + 4 = 0$

23. Two lines are given to be parallel. The equation of one of the lines is $4x + 3y = 14$ then the equation of the second line will be
[BOARD 2024]
 a) $12x + 9y = 42$ c) $12x + 9y = 5$
 b) $12x + 8y = 15$ d) $12x + 8y = 42$

24. Given the linear equation $3x + 4y = 9$, select another linear equation in these two variables such that the geometrical representation of the pair so formed is intersecting lines

a) $3x - 5y = 10$ c) $6x + 8y = 18$
b) $8x + 12y = 18$ d) above all

25. If $3x + 4y : x + 2y = 9 : 4$ then $3x + 5y : 3x - y$ is

a) $4 : 1$ b) $1 : 4$ c) $7 : 1$ d) $1 : 7$

26. If $x = a$ and $y = b$ is the solution of the equation $x - y = 2$ and $x + y = 4$ then the values of a and b are, respectively

a) 3 and 5 b) 5 and 3 c) 3 and 1 d) -1 and -3

27. What are the values of x and y for the following pair of linear equations?

$$3x + 2y - 7 = 0 \text{ and } 4x + y - 6 = 0$$

a) 1 and 2 b) 2 and 2 c) 1 and 1 d) -1 and -1

28. What are the values of x and y for the following pair of linear equations?

$$2x - y = 2 \text{ and } x + 3y = 15$$

a) 4 and 5 b) 3 and 4 c) 5 and 4 d) 4 and 4

29. The solution of the following pair of linear equations:

$$x - 3y = 2 \text{ and } 3x - y = 14$$

a) $x = 5, y = 1$ b) $x = 2, y = 3$ c) $x = 1, y = 2$ d) $x = 1, y = 4$

30. The solutions of the pair of equations $x + y = a + b$ & $ax - by = a^2 - b^2$ is

[BOARD 2023]

a) $x = b, y = a$ b) $x = -a, y = b$ c) $x = a, y = b$ d) $x = a, y = -b$

31. If $ax + by = a^2 - b^2$ and $bx + ay = 0$ then the value of $x + y$ is

[BOARD 2024]

a) $a^2 - b^2$ b) $a + b$ c) $a - b$ d) $a^2 + b^2$

32. What are the values of x and y for the following pair of linear equations?

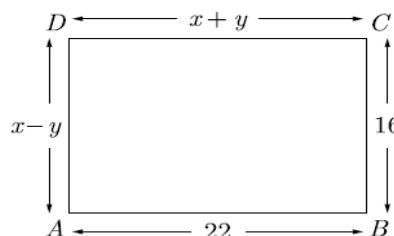
$$99x + 101y = 499 \text{ and } 101x + 99y = 501$$

a) 3 and 6 b) 3 and 2 c) 2 and 3 d) 6 and 3

33. If $2x + y = 23$ and $4x - y = 19$ the value of $(5y - 2x)$ and $\left(\frac{y}{x} - 2\right)$ will be

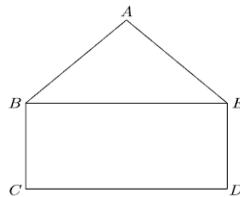
a) $-\frac{5}{7}, 31$ b) $31, -\frac{5}{7}$ c) $37, \frac{2}{7}$ d) $\frac{2}{7}, 37$

34. In the given figure, ABCD is a rectangle. The values of x and y will be



a) 3 and 19 b) 19 and 3 c) 4 and 18 d) 18 and 4

35. In the figure, ABCDE is a pentagon with $BE \parallel CD$ and $BC \parallel DE$. BC is perpendicular to CD. $AB = 5 \text{ cm}$, $AE = 5 \text{ cm}$, $BE = 7 \text{ cm}$, $BC = x - y$ and $CD = x + y$. If the perimeter of ABCDE is 27 cm. The value of x and y will be



36. The pair of equations $x = a$ and $y = b$ graphically represents lines which are

[BOARD 2023]

- a) Parallel
- b) coincident
- c) intersecting at (a, b)
- d) intersecting at (b, a)

37. If a pair of linear equations is consistent then the lines will be

- a) Parallel
- b) Intersecting or coincident
- c) always coincident
- d) always intersecting

38. What do you say about the lines represented by $2x + y = 3$ and $4x + 2y = 6$?

[BOARD 2023]

- a) Parallel
- b) Intersecting
- c) coincident
- d) none of these

39. What do you say about the lines represented by $2x + 3y - 9 = 0$ and $4x + 6y - 18 = 0$?

- a) Parallel
- b) Intersecting
- c) coincident
- d) none of these

40. If $ad \neq bc$ then what do you say about the solution of the pair of linear equations $ax + by = p$ and $cx + dy = q$?

- a) Unique solution
- b) Infinitely many solution
- c) two solution
- d) no solution

41. If $am = bl$ then what do you say about the solution of the pair of linear equations

$ax + by = c$ and $lx + my = n$?

- a) Unique solution
- b) Infinitely many solution
- c) two solution
- d) no solution

42. What do you say about the solution of the pair of linear equations $y = 0$ and $y = -5$?

- a) Unique solution
- b) Infinitely many solution
- c) two solution
- d) no solution

43. The pair of equations $y = 0$ and $y = 7$ has

[BOARD 2024]

- a) Unique solution
- b) Infinitely many solution
- c) two solution
- d) no solution

44. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ has

[BOARD 2024]

- a) Unique solution
- b) Infinitely many solutions
- c) exactly two solutions
- d) no solution

45. The pair of equations $3^{x+y} = 81$, $81^{x-y} = 3$ has

a) No solution
b) infinitely many solutions
c) unique solution
d) $x = 2\frac{1}{8}, y = 1\frac{7}{8}$

46. The pair of linear equations $2x + 3y = 5$ and $4x + 6y = 10$ is

a) Inconsistent
b) Consistent
c) dependent consistent
d) none of these

47. The two digit number which becomes $\frac{5}{6}$ of itself when its digits are reversed. The difference in the digits of the number being 1, then the two digit number is

a) 45
b) 54
c) 36
d) 63

48. In a number of two digits, unit's digit is twice the tens digit. If 36 be added to the number, the digits are reversed then the number is

a) 36
b) 63
c) 48
d) 84

49. x and y are 2 different digits. If the sum of the two digit numbers formed by using both the digits is a perfect square, then the value of $x + y$ is

a) 10
b) 11
c) 12
d) 13

50. A fraction becomes 4 when 1 is added to both the numerator and denominator and it becomes 7 when 1 is subtracted from both the numerator and denominator. The numerator of the given fraction is

a) 2
b) 3
c) 5
d) 15

51. A fraction becomes $\frac{1}{3}$ when 2 is subtracted from the numerator and it becomes $\frac{1}{2}$ when 1 is subtracted from the denominator. The fraction will be

a) $\frac{7}{15}$
b) $\frac{8}{15}$
c) $\frac{6}{15}$
d) $\frac{9}{15}$

52. The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages (in year) of the son and the father are, respectively

a) 4 and 24
b) 5 and 30
c) 6 and 36
d) 3 and 24

53. Aruna has only Re 1 and Rs 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is Rs 75, then the number of Re 1 and Rs 2 coins are, respectively

a) 35 and 15
b) 35 and 20
c) 15 and 35
d) 25 and 25

54. Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. The dimensions of garden will be

a) 20 m by 16 m
b) 36 m by 10 m
c) 16 m by 30 m
d) 20 m by 16 m

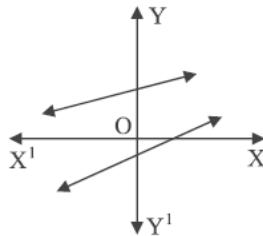
55. 3 chairs and 1 table cost Rs 900, whereas 5 chairs and 3 tables cost Rs 2100. If the cost of 1 chair is Rs x and the cost of 1 table is Rs y then the situation can be represented algebraically as

[BOARD 2023]

a) $3x + y = 900, 3x + 5y = 2100$
b) $3x + y = 900, 5x + 3y = 2100$
c) $x + 3y = 900, 3x + 5y = 2100$
d) $x + 3y = 900, 5x + 3y = 2100$

56. In the given figure, graphs of two linear equations are shown. The pair of these linear equations is

[BOARD 2024]



- a) Consistent with unique solution
- b) Consistent with infinitely many solutions
- c) Inconsistent
- d) Inconsistent but can be made consistent by extending these lines.

Options for Assertion and Reasoning Questions:

- a) Both assertion(A) and reason(R) are true and reason(R) is the correct explanation of assertion(A)
- a) Both assertion(A) and reason(R) are true but reason(R) is not the correct explanation of assertion(A)
- b) Assertion (A) is true but reason (R) is false
- c) Assertion (A) is false but reason (R) is true

57. **Assertion (A):** $x + y - 4 = 0$ and $2x + ky - 3 = 0$ has no solution if $k = 2$.

Reason (R): $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are consistent if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$.

58. **Assertion (A):** Pair of linear equations $9x + 3y + 12 = 0$ and

$8x + 6y + 24 = 0$ have infinitely many solution.

Reason (R): Pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ have infinitely many solutions if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

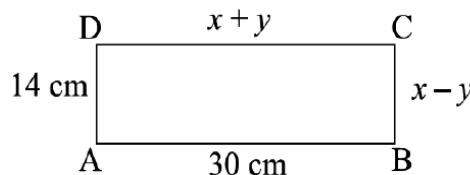
2 marks:

1. For what values of k will the following pair of linear equations have infinitely many solutions? $kx + 3y - (k - 3) = 0$ and $12x + ky - k = 0$.
2. For what value of k for which the following pair of linear equations have infinitely many solutions? $2x + 3y = 7$, $(k - 1)x + (k + 2)y = 3k$.
3. For what value of k for which the following pair of linear equations have infinitely many solutions? $2x - 3y = 7$, $(k + 2)x - (2k + 1)y = 3(2k - 1)$.
4. For what value of k will the following pair of linear equations have no solution? $3x + y = 1$, $(2k - 1)x + (k - 1)y = 2k + 1$.
5. Find the value of m for which the pair of linear equations. $2x + 3y - 7 = 0$ and $(m - 1)x + (m + 1)y = (3m - 1)$ has infinitely many solutions.

6. For what value of p will the following pair of linear equations have infinitely many solutions? $(p - 3)x + 3y = p$ and $px + py = 12$.
7. Determine the values of a and b for which the following system of linear equations has infinite number of solutions: $2x - (a - 4)y = 2b + 1$ and $4x - (a - 1)y = 5b - 1$.
8. If the system of equations $2x + 3y = 7$ and $(a + b)x + (2a - b)y = 21$ has infinitely many solutions, then find a and b .
9. If $49x + 51y = 499$, $51x + 49y = 501$ then find the values of x and y .
10. If $217x + 131y = 913$, $131x + 217y = 827$ then find the values of x and y .

[BOARD 2023]

11. In figure, ABCD is a rectangle. Find the values of x and y .



12. Sumit is 3 times as old as his son. Five years later, he shall be two and a half times as old as his son. How old is Sumit at present?
13. Solve the pair of equations $x = 3$ & $y = -4$ graphically. **[BOARD 2023]**
14. Using graphical method, find whether following system of linear equations is consistent or not $x = 0$ & $y = -7$. **[BOARD 2023]**
15. Solve $7x - 2y = 5$ & $8x + 7y = 15$ and verify your answer. **[BOARD 2024]**
16. Sum of two numbers is 105 and their difference is 45. Find the numbers. **[BOARD 2024]**

3 marks:

1. Solve for x and y : $\frac{x}{2} + \frac{2y}{3} = -1$ and $x - \frac{y}{3} = 3$.
2. Solve the pair of linear equations: $8x + 5y = 9$ and $3x + 2y = 4$.
3. Solve for x and y : $\frac{x+1}{2} + \frac{y-1}{3} = 9$ and $\frac{x-1}{3} + \frac{y+1}{2} = 8$.
4. Solve for x and y : $ax + by = \frac{a+b}{2}$ and $3x + 5y = 4$.
5. Solve graphically: $2x - 3y + 13 = 0$ and $3x - 2y + 12 = 0$.
6. Solve graphically: $2x + 3y = 2$ and $x - 2y = 8$.
7. Find whether the following pair of linear equations has a unique solution. If yes, find the solution: $7x - 4y = 49$ and $5x - 6y = 57$.
8. Solve: $152x - 378y = -74$ and $-378x + 152y = -604$.
9. 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:
 - Intersecting lines
 - Parallel lines
 - Coincident lines
10. Represent the following pair of linear equations graphically and hence comment on the condition of consistency of this pair. $x - 5y = 6$ and $2x - 10y = 12$.
11. Determine the values of m and n so that the following system of linear equation have infinite number of solutions: $(2m - 1)x + 3y - 5 = 0$ and $3x + (n - 1)y - 2 = 0$.

12. For what value of p will the following system of equations have no solution?
$$(2p - 1)x + (p - 1)y = 2p + 1 \text{ and } y + 3x - 1 = 0$$

13. If the system of equations $2x + 3y = 7$ and $2ax + (a + b)y = 28$ has infinitely many solutions, then find a and b . **[BOARD 2023]**

14. A fraction becomes $\frac{1}{3}$ when 2 is subtracted from the numerator and it becomes $\frac{1}{2}$ when 1 is subtracted from the denominator. Find the fraction. **[BOARD 2023]**

15. Half of the difference between two numbers is 2. The sum of the greater number and twice the smaller number is 13. Find the numbers. **[BOARD 2023]**

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

17. A number consists of two digits. Where the number is divided by the sum of its digits, the quotient is 7. If 27 is subtracted from the number, the digits interchange their places, find the number.

18. A 2-digit number is seven times the sum of its digits. The number formed by reversing the digits is 18 less than the given number. Find the given number.
[BOARD 2023]

19. The sum of the digits of a 2-digit number is 14. The number obtained by interchanging its digits exceeds the given number by 18. Find the number.
[BOARD 2024]

20. Two numbers are in the ratio of 1: 3. If 5 is added to both the numbers, the ratio becomes 1: 2. Find the numbers.

21. Students of a class are made to stand in rows. If 4 students are extra in a row, there would be two rows less. If 4 students are less in a row, there would be four more rows. Find the number of students in the class.

22. A part of monthly hostel charges in a college 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 22 days, he has to pay Rs. 1380 as hostel charges. Whereas a student 'B' who takes food for 28 days, pays Rs. 1680 as hostel charges. Find the fixed charges and the cost of food per day.
[BOARD 2024]

23. The ratio of income 2 persons is 9:7 and the ratio of their expenditure is 4:3, if each of them manage to save Rs. 2000/ month. Find their monthly incomes.

24. A shop keeper gives books on rent for reading. She takes a fixed charge for first two days and an additional charge for each day thereafter. Latika paid Rs 22 for a book kept for six days, while Anand paid Rs 16 for the book kept for four days. Find the fixed charge and the charge for each extra day.

25. 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?
[BOARD 2023]

26. A train covered a certain distance at a uniform speed. If the train would have been 6 km/hr faster, it would have taken 4 hours less than the scheduled time. And if the train were slower by 6 km/hr, it would have taken 6 hours more than the scheduled time. Find the length of the journey.

27. Anuj had some chocolates and he divided them into two lots A and B. He sold the first lot at the rate of Rs 2 for 3 chocolates and the second lot at the rate of Re 1 per chocolate and got a total of Rs 400. If he had sold the first lot at the rate of Re 1 per chocolate and the second lot at the rate of Rs 4 for 5 chocolates, his total collection would have been Rs 460. Find the total number of chocolates he had.

28. 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. How many notes of Rs. 50 and Rs.100 she received? **[BOARD 2024]**

29. A man wished to give Rs.12 to each person and found that he fell short of Rs. 6 when he wanted to give to all the persons present. He therefore, distributed Rs.9 to each person and found that Rs.9 were left over. How much money did he have and how many persons were there?

30. A father's age is three times the sum of the ages of his children. After 5 years, his age will be two times the sum of their ages. Find the present age of the father.

[BOARD 2023]

31. Three years ago, Rashmi was thrice as old as Namza. Ten years later, Rashmi will be twice as old as Namza. How old are Rashmi and Namza now? **[BOARD 2024]**

32. In a chemistry lab, there is some quantity of 50% acid solution and some quantity of 25% acid solution. How much of each should be mixed to make 10 liters of 40% acid solution? **[BOARD 2024]**

5 marks:

1. For what value of k , which the following pair of linear equations have infinitely many solutions: $2x + 3y = 7$ and $(k + 1)x + (2k - 1)y = 4k + 1$.

2. Find c if the system of equations $cx + 3y + (3 - c) = 0$, $12x + cy - c = 0$ has infinitely many solutions.

3. For what value of a and b does the following pair of linear equations have infinitely many solutions: $2x + 3y = 7$, $a(x + y) - b(x - y) = 3a + b - 2$.

4. Find the value of p and q for which the system of equations represent coincident lines $2x + 3y = 7$ and $(p + q + 1)x + (p + 2q + 2)y = 4(p + q) + 1$.

5. Solve for x and y : $2x - y + 3 = 0$ and $3x - 5y + 1 = 0$.

6. Solve graphically: $x - y = 1$ and $2x + y = 8$.

7. Solve graphically: $2x - y = 1$ and $x + 2y = 13$.

8. Solve graphically: $3x - 4y + 3 = 0$ and $3x + 4y - 21 = 0$.

[BOARD 2024]

9. Solve graphically: $2x + 3y = 12$ and $x - y - 1 = 0$.

10. Determine graphically whether the following pair of linear equations:

$3x - y = 7$ and $2x + 5y + 1 = 0$ has

- a) Unique solution
- b) Infinitely many solutions or
- c) No solution.

11. Draw the graph of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the X-axis and shade the triangular region.

12. Solve the pair of linear equations graphically:

$$x + 3y = 12, 2x - 3y = 12$$

Also shade the region bounded by the line $2x - 3y = 2$ and both the coordinate axes

13. Solve the pair of linear equations graphically:

$$x - y = 1, 2x + y = 8$$

Also find the coordinates of the points where the lines represented by the above equation intersect y-axis.

14. Aftab tells his daughter, '7 years ago, I was seven times as old as you were then.

Also, 3 years from now, I shall be three times as old as you will be'. Represent this situation algebraically and graphically.

15. The cost of 2 kg apples and 1 kg of 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 situations algebraically and geometrically.

16. For Uttarakhand flood victims two sections A and B of class contributed Rs 1500. If the contribution of X-A was Rs 100 less than that of X-B, find graphically the amounts contributed by both the sections.

17. The area of rectangle gets reduced by 80 square units, if its length is reduced by 5 units and breadth is increased by 2 units. If we increase the length by 10 units and decrease the breadth by 5 units, the area increases by 50 square units. Find the dimensions of the rectangle. **[BOARD 2024]**

18. 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?

[BOARD 2023 & BOARD 2024]

19. If three times the greater of two numbers is divided by the smaller one, we get 4 as the quotient and 3 as the remainder. Also, if seven times the smaller number is divided by greater one, we get 5 as the quotient and 1 as the remainder. Find the numbers. **[BOARD 2024]**

Case based questions:

1. Two schools 'P' and 'Q' decided to award prizes to their students for two games of Hockey Rs x per student and Cricket Rs y per student. School 'P' decided to award a total of Rs 9,500 for the two games to 5 and 4 students respectively; while school 'Q' decided to award Rs 7,370 for the two games to 4 and 3 students respectively.

[BOARD 2023]



Based on the above information, answer the following questions:

(i) Represent the following information algebraically (in terms of x and y). 1
(ii) (a) What is the prize amount for hockey? 2

OR

(b) Prize amount on which game is more and by how much? 2
(iii) What will be the total prize amount if there are 2 students each from two games? 1

2. A coaching institute of Mathematics conducts classes in two batches I and II and fees for rich and poor children are different. In batch I, there are 20 poor and 5 rich children, whereas in batch II, there are 5 poor and 25 rich children. The total monthly collection of fees from batch I is Rs 9000 and from batch II is Rs 26000. Assume that each poor child pays Rs x per month and each rich child pays Rs y per month. Based on the above information answer the following questions:

[BOARD 2023]



(i) Represent the situation in terms of x and y . 1
(ii) Find the monthly fee paid by a poor child. 2

OR

Find the difference in the monthly fee paid by a poor child and a rich child. 2
(iii) If there are 10 poor and 20 rich children in batch II, what is the total monthly collection of fees from batch II? 1

3. MASK: Masks are an additional step to help prevent people from getting and spreading COVID-19. They provide a barrier that keeps respiratory droplets from spreading. Wear a mask and take every day preventive actions in public settings. Due to ongoing Corona virus outbreak, Wellness Medical store has started selling masks of decent quality. The store is selling two types of masks currently type A and type B.



The cost of type *A* mask is Rs. 15 and of type *B* mask is Rs. 20. In the month of April, 2020, the store sold 100 masks for total sales of Rs. 1650.

(i) How many masks of each type were sold in the month of April? If the store had sold 50 masks of each type, what would be its sales in the month of April? **1**

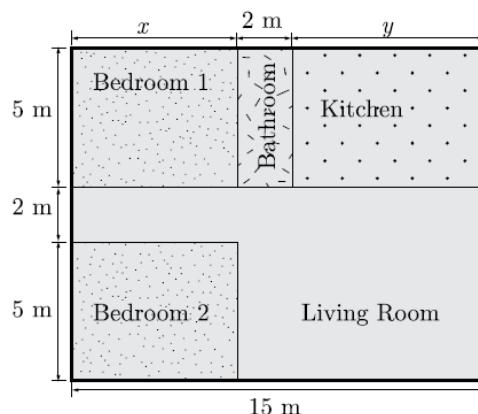
(ii) Due to great demand and short supply, the store has increased the price of each type by Rs. 5 from May 1, 2020. In the month of May, 2020, the store sold 310 masks for total sales of Rs. 6875. How many masks of each type were sold in the month of May? **1**

(iii) What percent of masks of each type sale was increased in the month of May, compared with the sale of month April? **2**

OR

What extra profit did store earn by increasing price in May month. **2**

4. Varsha is a licensed architect and design very innovative house. She has made a house layout for her client which is given below. In the layout, the design and measurements has been made such that area of two bedrooms and kitchen together is 95 sq. m.



(i) Which pair of linear equations does describe this situation? **1**

(ii) What is the length of the outer boundary of the layout. **1**

(iii) What is the area of bedroom 1? What is the area of living room in the layout? **2**

OR

What is the cost of laying tiles in Kitchen at the rate of Rs. 50 per sq. m? **2**

5. Mr. RK Agrawal is owner of a famous amusement park in Delhi. The ticket charge for the park is Rs 150 for children and Rs 400 for adult. Generally he does not go to park and it is managed by team of staff. One day Mr Agrawal decided to random check the park and went there. When he checked the cash counter, he found that 480 tickets were sold and Rs 134500 was collected. **[BOARD 2024]**



(i) Let the number of children visited be x and the number of adults visited be y . Which of the following is the correct system of equations that model the problem? 1

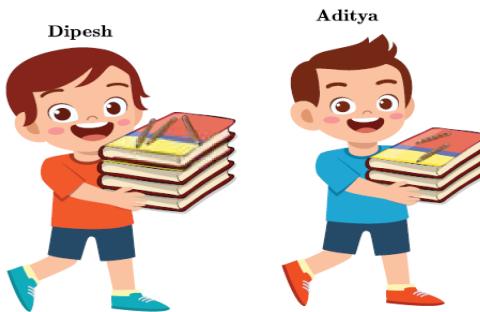
(ii) How many children visited the park? How many adults visited the park? 1

(iii) How much amount collected if 300 children and 350 adults visited the park? 2

OR

One day total visited children and adults together are 750 and the total amount collected is Rs 212500. What are the number of children and adults visited the park? 2

6. Dipesh bought 3 notebooks and 2 pens for Rs. 80. His friend Ramesh said that price of each notebook could be Rs. 25. Then three notebooks would cost Rs.75, the two pens would cost Rs. 5 and each pen could be for Rs. 2.50. Another friend Amar felt that Rs. 2.50 for one pen was too little. It should be at least Rs. 16. Then the price of each notebook would also be Rs.16.



Aditya also bought the same types of notebooks and pens as Dipesh. He paid 110 for 4 notebooks and 3 pens.

(i) Whether the estimation of Ramesh and Amar is applicable for Aditya? 1

(ii) Let the cost of one notebook be x and that of pen be y . Which of the following set describe the given problem? 1

(iii) What is the exact cost of the notebook? 2

OR

What is the exact cost of the pen? What is the total cost if they purchase the same type of 15 notebooks and 12 pens. 2