	EXER(SE	# 1
	Multiple choice questions	14.	The pair of linear equations $2x + ky = k$,
1.	The pair of equations x = 0 and y = - 7 has (1) One solution (2) Two solutions (3) Infinitely many solutions	15.	4x + 2y = k + 1 has infinitely many solutions if (1) $k = 1$ (2) $k \sigma 1$ (3) $k = 2$ (4) $k = 4$ The pair of linear equations $13x + ky = k$, 39x + 6y = k + 4 has infinitely many solutions if
2.	(4) No solution The pair of equations $x = a$ and $y = b$ graphically represents lines which are	16.	(1) $k = 1$ (2) $k = 2$ (3) $k = 4$ (4) $k = 6$ The pair of linear equations $x + y = 3$, $2x + 5y = 12$ has a unique solution $x = x$, $y = y$, then value of
3.	 (1) Parallel (2) Intersecting at (b,a) (3) Coincident (4) Intersecting at (a,b) If a pair of linear equations is consistent, then the lines will be (1) Parallel 	17.	x ₁ is (1) 1 (2) 2 (3) - 1 (4) - 2 The pair of linear equations $3x - 5y + 1 = 0$, 2x - y + 3 = 0 has a unique solution $x = x$, $y = ythen y1(1) 1 (2) 2 (3) - 1 (4) - 2then y1$
4.	 (2) Always coincident (3) Intersecting or coincident (4) Always intersecting One equation of a pair of dependent linear 	18.	(1) 1 (2) -1 (3) -2 (4) -4 The pair of linear equations x + 2y = 5, $3x + 12y = 10$ has (1) Unique solution (2) No solution
5.	equations is $-5x + 7y = 2$. The second equation can be (1) $10x + 14y + 4 = 0$ (2) $-10x - 14y + 4 = 0$ (3) $-10x + 14y + 4 = 0$ (4) $10x - 14y = -4$ If the pair of linear equations $x - y = 1$, $x + ky = 5$ has a unique solution $x = 2$, $y = 1$, then value of k is	19.	(3) More than two solutions (4) Infinitely many solutions The pair of equations $5x - 15y = 8$ and $3x - 9y = \frac{24}{5}$ has.
6.	(1) - 2 (2) 3 (3) -3 (4) 4 The pair of linear equations $2x + ky - 3 = 0$, $6x + \frac{2}{3}y + 7 = 0$ has a unique solution if (1) $k = \frac{2}{3}$ (2) $k_{\sigma} \frac{2}{3}$ (3) $k = \frac{2}{9}$ (4) $k_{\sigma} \frac{2}{9}$	20.	(1) One solution (2) Two solutions (3) Infinitely many solutions (4) No solution The pair of equations $x + 2y + 5 = 0$ and - 3x - 6y + 1 = 0 have.
7.	The pair of linear equations $2kx + 5y = 7$, 6x - 5y = 11 has a unique solution if (1) k $\sigma - 3$ (2) k $\sigma 3$ (3) k $\sigma 5$ (4) k $\sigma - 5$		(1) A unique solution(2) Exactly two solutions(3) Infinitely many solutions
8.	The pair of equations $3x + 4y = k$, $9x + 12y = 6$ has infinitely many solutions if	21.	(4) No solution For what value of k, do the equations $3x - y + 8 = 0$ and $6x - ky = -16$ represent coincident lines?
9.	(1) $k = 2$ (2) $k = 6$ (3) $k \sigma 6$ (4) $k = 3$ The pair of linear equations $2x + 5y = k$, kx + 15y = 18 has infinitely many solutions if (1) $k = 3$ (2) $k = 6$ (3) $k = 9$ (4) $k = 18$	22.	(1) $1/2$ (2) $-1/2$ (3) 2 (4) -2 Graphically, the pair of equations $6x - 3y + 10 = 0$, 2x - y + 9 = 0 represents two lines which are (1) Intersecting at exactly one point
10.	The pair of linear equations $3x + 5y = 3$, 6x + ky = 8 do not have any solution if (1) k = 5 (2) k = 10 (3) k σ 10 (4) k σ 5		(2) Intersecting at exactly two points(3) Coincident(4) Parallel
11.	The pair of linear equations $3x + 7y = k$, 12x + 2ky = 4k + 1 do not have any solution if	23.	A pair of linear equations which has a unique solutions $x = 2$, $y = -3$ is
12.	(1) k = 7 (2) k = 14 (3) k = 21 (4) k = 28 The pair of linear equations $7x - 3y = 4$, $\frac{k}{3x + \frac{1}{7}y} = 4$ is consistent only when		(1) $x + y = -1$, $2x - 3y = -5$ (2) $2x + 5y = -11$, $4x + 10y = -22$ (3) $2x - y = 1$, $3x + 2y = 0$ (4) $x - 4y - 14 = 0$, $5x - y - 13 = 0$
13.	(1) k = 9 (2) k = -9 (3) k $\sigma - 9$ (4) k σ 7 The pair of linear equations kx + 4y = 5,	24.	The graphical representation of the pair of equations 2x + 4y - 15 = 0 and $x + 2y - 4 = 0$ gives a pair of

(4) k = 3

3x + 2y = 5 is consistent only when

(1) $k_{\sigma} 6$ (2) k = 6 (3) $k_{\sigma} 3$

(1) Parallel lines (2) Intersecting lines

(3) Coincident lines (4) None of these

1

- **Jass ≵** −3y = 7 and (a + b) x − (a + b − 3) y = 4a + b 25. have infinite solutions (a,b) = (1) (-5, -1) (2) (-5, 1) (3) (5, 1)(4)(5, -1)
- 26. If x = 2 and y = 1 is a unique solution of the system x - y - 1 = 0 and x + ky - 5 = 0 then k =

(2) 3 (3) 1

- (1)2(4) 0 The pair of equations 3x + 5y = 3 and 6x + ky = 827. have no solution if k=
- (1) 10 (1) 10 (2) 5 (3) - 5 (4) 0 The pair of linear equations x + 2y = 5, 7x + 3y = 1328.

has a unique solution

(1)
$$x = 1, y = 2$$
 (2) $x = 2, y = 1$

(3)
$$x = 3, y = 1$$
 (4) $x = 1, y = 3$

29. If (6, k) is a solution of the equation 3x + y - 22 = 0, then the value of k is

$$(1) - 4$$
 $(2) 4$ $(3) 3$ $(4) - 3$

30. If A : Homogeneous system of linear equations is always consistent. R: x = 0, y = 0 is always a solution of the

homogeneous system of equations with unknowns x and y, then which of the following statement is true?

- (1) A is true and R is the correct explanation of A
- (2) A is false and R is not a correrct explanation of A
- (3) A is true and R is false

(4) A is false and R is true

- 31. If 2x + 3y = 0 and 4x - 3y = 0, then x + y equals (2) - 1(3) 1 (1) 0 (4) 2
- If bx + ay = $a^2 + b^2$ and ax by = 0, then the value 32. of (x - y) is

(1)
$$a - b$$
 (2) $b - a$ (3) $a^2 - b^2$ (4) $b^2 + a^2$

33. The equations x - y = 0.9 and x + y = 2 have the solution

(1) $x = 5, y = 1$	(2) $x = 3.2$ and $y = 2.3$
(3) $x = 3, y = 2$	(4) None of these

Three chairs and two tables cost 1850. Five chairs 34. and three tables cost 2850. Then the total cost of one chair and one table is

> (1) 800 (2) 850 (3) 900 (4) 950

35. A man, when asked how many hens and buffaloes he has, told that his animals have 120 eves and 180 legs. How many hens and buffaloes has he?

(1) 30, 30	(2) 40, 20
(3) 50, 10	(4) 35, 15
	1

A fraction becomes $\frac{1}{5}$ when 1 is added to each of 36.

37. If the sum of the ages of a father and his son in years is 65 and twice the difference of their ages in years is 50, then the age of the father is

(1) 45 years	(2) 40 years
(3) 50 years	(4) 55 years

38. Six years hence a man's age will be three times the age of his son and three years ago he was nine times as old as his son. The present age of the man is

(1) 28 years	(2) 30 years
(3) 32 years	(4) 34 years

39. The sum of the digits of a two-digit number is 9. If 27 is added to it, the digits of the number get reversed. The number is

(3) 63

(4) 36

40. The larger of two supplementary angles exceeds the smaller by 24 degrees. Then the angles are

(3) 92°, 68°	(4) 122°, 98°
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Match the column

1.

2.

	Column-I	Column-II				
(1)	Solution of $ax + by = a - b$	(a)	x = a, y = b			
	bx-ay = a + b is					
(2)	Solution of	(b)	x = 4, y = 3			
	x + y = a + b					
	$ax-by=a^2-b^2$					
(3)	Solution of $2x - y - 3 = 0$	(c)	x = 1, y = -1			
	4x + y - 3 = 0					
(4)	Solution of					
	2x + 3y = 17					
	3x - 2y = 6					

	Column-I	Co	olumn-ll
(1)	The sum of the digits of a two (digit number is 12. The	a)	155
	number obtained by interchanging its digits exceeds the given number by 18. Find (b the number.)	5
(2)	5 books and 7 pens together		
	cost $$ 79 and 7 books and 5		
	pens together cost 77. Find the cost of 1 book and 2 pens.	(c)	20
(3)	3 bags and 4 pens together cost 257 whereas 4 bags and 3 pens together cost		
	 324. Find costof 1 bag and 10 pens. 	(d)	57
(4)	The difference between two numbers is 14 and the difference between their squares is 448. Find the		

the numerator and denominator. However	ver, if we
subtract 5 from each then it becomes	1 The
fraction is	٢

$$(1)\frac{5}{8} \qquad (2)\frac{5}{6} \qquad (3)\frac{7}{9} \qquad (4)\frac{13}{16}$$

Linear Equation



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EXER CISE # 2

Short answer type questions

1. Solve the equation graphically

(i)
$$\frac{4}{9} + \frac{1}{3} = 1, 5x + 2y = 13$$

(ii) x + y = 7, 5x + 2y = 20

(iii) x + 2y = 3, 2x + 4y = 15

(iv) 2x + 3y - 5 = 0, 6x + 9y - 15 = 0

2. Check whether the pair of equations x + 3y = 6,

and 2x - 3y = 12 is consistent. If so, solve

graphically.

- 3. Show graphically that the pair of equations 2x 3y + 7 = 0, 6x 9y + 21 = 0 has infinitely many solutions.
- 4. Show graphically that the pair of equations 8x + 5y = 9, 16x + 10y = 27 has no solution.
- 5. Find graphically whether the pair of equations

 $5x - 8y + 1 = 0, 3x - \frac{24}{5}y + \frac{3}{5} = 0$ has no

solution, unique solution or infinitely many solutions.

- 6. Show graphically that the pair of equations 3x + 4y = 6, 6x + 8y = 12 represents coincident lines.
- 7. Determine by drawing graphs whether the following pair of equations has a unique solution or not : 2x 3y = 6, 4x 6y = 9. If yes, find the solution also.
- 8. Solve graphically the pair of equations x + 3y = 6, and 3x 5y = 18. Hence, find the value of K if 7x + 3y = K.
- **9.** Solve graphically the following pair of linear equations :

2x + 3y - 12 = 0, 2x - y - 4 = 0. Also find the coordinates of the points where the lines meet the y-axis.

10. On comparing the ratios $\underline{1}, \underline{1}$ and $\underline{1}$ find out $a_2 \quad b_2 \quad c_2$

whether the following pair of linear equations are consistent or inconsistent.

- <u>a b c</u>
- **11.** On comparing the ratios a_2^1 , b_2^1 and c_2^1 find out c_2^1

whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident :

(iii)
$$ax - by = c$$
; $bx + ay = c_2$

where a σ 0, b σ 0

- **12.** For the linear equations given below, 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

(a) 2x - 3y = 6

b)
$$y = 2x + 3$$

- **13.** Find the value of k for which the given system of equations has
 - (i) a unique solution.

(a)
$$(k - 3)x + 3y = k$$
; $kx + ky = 12$

(b)
$$x - ky = 2$$
; $3x + 2y = -5$

- (ii) no solution.
 - (a) kx + 2y 1 = 0; 5x 3y + 2 = 0
 - (b) kx + 3y = k 3; 12x + ky = k
- (iii) infinite number of solutions.

(a)
$$5x + 2y = 2k$$
 and $2(k + 1) x + ky = (3k + 4)$

(b)
$$10x + 5y - (k-5) = 0$$
 and $20x + 10y - k = 0$

(c) kx + 3y = k - 3 and 12x + ky = k

14.

Find the value of k for which the system of equations kx - y = 2 and 6x - 2y = 3 has

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		(i)	A u
15.			n i q u e s o
		(ii)	l u t i o n N
			o s o l u t i o
		Fin d the val ue of	n
		a an d b for wh ich giv en sy	
	(ii) $\frac{1}{3}x + 2y = 8$; $2x + 3y = 12$	ste m	of linear equation has an infinite number of solutions
	(iii) $x - 2y = 3$; $3x - 6y = 1$		(a + b)x - 2by = 5a + 2b + 1 and $3x - y = 14$
		1	

Linear Equation

Write a pair of linear equations which has the unique solution x = -1, y = 3. How many such

pairs can you write?

Find the values of x and y in the following rectangle. **17.**



18. If 2x + y = 23 and 4x - y = 19, find the values of 5y - 2x and y/x - 2.

Solve 2x - y = 12 and x + 3y + 1 = 0 and hence find the value of m for which y = mx + 3.

Based on substitution method

(i) 11x - 8y = 27, 3x + 5y = -7

20.

(ii) 0.04 x + 0.02 y = 5, 0.5 x - 0.4 y = 30

(iii)
$$\frac{1}{2}(9x + 10y) = 23$$
, $\frac{5x}{4} - 2y = 3$

(iv)
$$x + \frac{y}{2} = 4$$
; $\frac{x}{3} + 2y = 5$
(v) $x = 3y - 19$, $y = 3x - 23$
(vi) $\frac{x + 11}{7} + 2y = 10$, $3x = 8 + \frac{y + 7}{11}$

Based on elimination method

21. (i) 78x + 91y = 39 and 65x + 117y = 42

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

(iii)
$$\frac{bx}{a} - \frac{ay}{b} + a + b = 0$$
 and $bx - ay + 2ab = 0$

- (iv) 2(ax by) + (a + 4b) = 0 and 2(bx + ay) + (b 4a) = 0
- (v) (a + 2b)x + (2a b)y = 2 and (a 2b)x + (2a + b)y = 3
- (vi) $\sqrt{7x} + 11y = 0$ and 3x 5y = 0

Long answer type questions

22. Solve graphically the system of linear equations x + 2y = 3, 4x + 3y = 2.

Solve the following pair of equations graphically :

23.
$$x + y = 4, 3x - 2y = -3$$

Shade the region bounded by the lines representing the above equations and x-axis.

Solve graphically the following pair of equations :

24.
$$x - y = 1, 2x + y = 8.$$

Shade the area bounded by these lines and the y-axis.

25. On the same axes, draw the graph of each of the following equations :

2y - x = 8, 5y - x = 14, y - 2x = 1.

Hence, obtain the vertices of the triangle so formed. Solve graphically the pair of linear equations :

26. 4x - 3y + 4 = 0, 4x + 3y - 20 = 0. Find the area of the region bounded by these lines and x-axis.

Based on equations reducible to linear equations. Solve for x and y

27.
$$\begin{array}{c} 2 & 3 \\ (i) \frac{-}{x} + \frac{-}{y} \end{array} = 2 ; \qquad \begin{array}{c} 1 & -1 \\ \overline{x} & \overline{2y} \end{array} = \frac{1}{3} \\ (ii) \frac{-}{x} + \frac{-}{y} \end{array} = 2 ; \qquad \begin{array}{c} 1 & 1 & 1 \\ \overline{x} & \overline{2y} \end{array} = \frac{1}{3} \\ (iii) \frac{-}{x} + \frac{-}{y} = -\frac{-}{3} ; \qquad \begin{array}{c} 1 & 1 & 1 \\ \overline{x} & \overline{2y} \end{array} = \frac{1}{3} \\ (iii) \frac{11}{-} - \frac{-}{y} = -\frac{-}{23} ; \qquad \begin{array}{c} 3 & 7 \\ - & \overline{x} \end{array} = \frac{23}{2} \\ (x & 2y & \overline{2} \end{array} ; \qquad \begin{array}{c} 3 & 7 \\ - & \overline{4x} \end{array} = \frac{23}{15y} = \frac{23}{6} \\ (iv) & 6x + 5y = 8xy ; \qquad \begin{array}{c} 3 & 7 \\ - & \overline{4x} \end{array} = \frac{23}{15y} = \frac{23}{6} \\ (iv) & 6x + 5y = 8xy ; \qquad \begin{array}{c} 8x + 3y = 7xy \\ (v) & x - y \\ - & \overline{xy} \end{array} = 9 \\ \hline xy \end{array} ; \qquad \begin{array}{c} x + y \\ - & xy \end{array} = 5 \\ (vi) & 9 + 25xy = 53x ; & 27 - 4xy = x \end{array}$$

- (vii) $\frac{16}{x+3} + \frac{3}{y-2} = 5;$ $\frac{8}{x+3} \frac{1}{y-2} = 0$ x+3 y-2
- (viii) $\frac{24}{2x+y} \frac{13}{3x+2y} = 2;$ $\frac{26}{3x+2y} + \frac{8}{2x+y} = 3$

$\sqrt{-}$ $\sqrt{-}$	GACC (94642-73536						
(vii) 0.5x + 0.7y = 0.74 and 0.3x + 0.5y = 0.5 (viii) 217x + 131y = 913 and 131x + 217y		+	_y 2 __	=	3	+ 2(y - 2) -	_ 47
= 827 (ix) 47x + 31y = 63 and 31x + 47y = 15		(ix) x – 1	4	2;	2(x – 1)	5	20

Based on articles and their costs

- 28. 4 tables and 3 chairs together cost 2250 and 3 tables and 4 chairs cost` 1950. Find the cost of 2 chairs and 1 table.
- 29. A and B each have a certain number of mangoes. A says to B," if you give 30 of your mangoes, I will have twice as many as left with you." B replies,"if you give me 10, I will have thrice as many as left with you." How many mangoes does each have?
- **30.** One says," give me a hundred, friend! I shall then become twice as rich as you," The other replies," If you give me ten, I shall be six times as rich as you." Tell me what is the amount of their respective capital?
- 31. A man has only 20 paisa coins and 25 paisa coins in

his purse. If he has 50 coins in all totalling 11.25, how many coins of each kind does he have?

Based on numbers

- **32.** The sum of two numbers is 8. If their sum is 4 times their difference. Find the number.
- **33.** The sum of two numbers is 1000 and the difference between their squares is 256000. Find the numbers.
- 34. In a two digit number, the ten's digit is three times the unit's digit. When the number is decreased by 54, the digits are reversed. Find the number.
- 35. The sum of the digits of a two digit number is 15. The number obtained by reversing the order of digits of the given number exceeds the given number by 9. Find the given number.
- **36.** The sum of a two digit number and the number formed by interchanging its digits is 110. If 10 is subtracted from the first number, the new number is 4 more than 5 times the sum of its digits in the first number. Find the first number.

Based on fractions

37. The sum of the numerator and denominator of a fraction is 4 more than twice the numerator. If the numerator and denominator are increased by 3,

they are in the ratio 2 : 3. Determine the fraction.

38. The sum of the numerator and denominator of a

fraction is 3 less than twice the denominator. If the

Based on ages

- 39. I am three times as old as my son. Five years later, I shall be two and a half times as old as my son. How old am I and how old is my son?
- **40.** Five years hence, father's age will be three times the age of his son. Five years ago, father was seven times as old as his son. Find their present ages.
- **41.** A and B are friends and their ages differ by 2 years. A's father D is twice as old as A and B is twice as old as his sister C. The age of D and C differ by 40 years. Find the ages of A and B.
- **42.** Father's age is three times the sum of ages of his two children. After 5 years his age will be twice the sum of ages of two children. Find the age of father.

Based on time, distance and speed

- **43.** Points A and B are 80 km. apart from each other on a highway. A car starts from A and another from B at the same time. If they move in the same direction, they meet in 8 hours and if they move in opposite directions, they meet in one hour and twenty minutes. Find the speeds of the two cars.
- **44.** Rahul travels 600 km to his home partly by train and partly by car. He takes 8 hours if he travels 120 km by train and the rest by car. He takes 20 minutes longer if he travels 200 km by train and the rest by car. Find the speed of the train and the car.
- **45.** A sailor goes 8 km downstream in 40 minutes and returns in 1 hour. Determine the speed of the sailor in still water and the speed of the current.
- **46.** The boat goes 30 km upstream and 44 km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55 km downstream. Determine the speed of stream and that of the boat in still water.
- 47. X takes 3 hours more than Y to walk 30 km. But, if X doubles his pace, he is ahead of Y by 1½ hours. Find their speeds of walking.
- **48.** A man walks a certain distance with certain speed.

If he walks $\frac{1}{2}$ km an hour faster, he takes 1 hour

numerator and denominator are decreased by 1,

CBSE : Class X the numerator becomes half the denominator. Determine the fraction.

less. But, if he walks 1 km an hour slower, he takes 3 more hours. Find the distance covered by the man and his original rate of walking.

Mathematics

		50.	o men and 12 poys can inish a piece of work in
49.	speed. If the train would have been 6 km/ h faster,		10 days while 6 men and 8 boys can finish it in
	it would have taken 4 hours less than the scheduled		14 days. Find the time taken by one man alone
	time. And, if the train were slower by 6 km/ h, it		and that by one boy alone to finish that work.
	would have taken 6 hours more than the scheduled		On solling a toa-set at 5% loss and a lemon set at
	time. Find the length of the journey.	57.	15% gain a crockery seller gains 7 If he sells the
	Based on geometrical applications		tea set at 5% gain and the lemon set at 10%
50.	In a O_{ABC} , $3C = 33B = 2 (3A + 3B)$. Find the		gain, he gains ` 13. Find the actual price of the
	three angles.		tea set and the lemon set.
51.	Find the four angles of a cyclic quadrilateral ABCD	58.	Draw the graphs of the equations $x = 3$, $x = 5$
	in which $3A = (2x - 1)^\circ$, $3B = (y + 5)^\circ$,		and $2x - y - 4 = 0$. Also find the area of the
	$3C = (2y + 15)^{\circ}$ and $3D = (4x - 7)^{\circ}$.		quadrilateral formed by the lines and the x-axis.
52.	In a OABC, $3A = x^{\circ}$, $3B = 3x^{\circ}$ and $3C = y^{\circ}$. If $3y-5x=30$, prove that the triangle is right angled.	59.	A two-digit number is obtained by either multiplying
	High order thinking skills (HOTS)		or by multiplying the difference of the digits by 16
	3x = 2 $5x = 1$ $3x = 15$ $6x = 5$		and then adding 3. Find the number.
53.	$\frac{3x+2}{3y+7} = \frac{3x+1}{5y+16}; \frac{3x+16}{x-9} = \frac{3y+6}{2y+3}$	60.	Vijay had some bananas, and he divided them into
	$\frac{x+2y+1}{2} = 2; \frac{3x-y+1}{2} = 5$		two lots A and B. He sold the first lot at the rate
54.	$2x-y+1 \qquad \qquad x-y+3$		of 2 for 3 bananas and the second lot at the rate
55.	A man sold a chair and a table together for Rs.1520		of $\hat{}$ 1 per banana and got a total of $\hat{}$ 400. If he
	thereby making a profit of 25% on the chair and		had sold the first lot at the rate of 1 per banana
	10% on table. By selling them together for Rs.1535		and the second lot at the rate of 4 for 5 bananas,
	he would have made a profit of 10% on the chair		his total collection would have been 460. Find
	and 25% on the table. Find the cost price of each.		the total number of bananas he had.
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CRSE - Class X

Short answer type questions 1. (i) x = 3, y = -1, (ii) x = 2, y = 5 (iii) No solution (iv) Infinite number of solutions 7. No 2. Yes; x = 6, y = 08. x = 6, y = 0; K = 425. Infinitely many sol tions 9. x = 3, y = 2, (0,4), (0, -4)10. (i) consistent (ii) consistent (iii) inconsistent dent, (iv) intersect at a point **11.** (i) intersect at a point (ii) intersect at a point (iii) coin **12.** (a) (i) 3x + 5y - 7 = 0 (ii) 4x - 6y - 8 = 0 (iii) 6x - 9 = 18(b) (i) 2x + 3y - 4 = 0 (ii) 4x - 2y + 8 = 0 (iii) 8x - 4 + 12 = 0 (many such examples may be given) **13.** (i) (a) $k \sigma 6$ (b) $k \sigma -2/3$, (ii) (a) k = -10/3 (b) k = -1 (iii) (a) k = 4 (b) k = 10 (c) k = 6**14.** (i) $k \sigma 3$ (ii) k = 3**15.** a = 5. b = 1 **16** x + y = 2 & x - y = -4; Infinite **17.** x = 1, y = 4**18.** 31. – 5/7 **19** (=5, y = -2, m = -1,**20.** (i) x = 1, y = -2, (ii) x = 100, y = 50, (iii) x = 4, y = - (iv) x = 3, y = 2, (v) x = 11, y = 10 (vi) x = 3, y = 4**21.** (i) x = 3/13, y = 3/13, (ii) x = 2, y = -3, (iii) x = -a, y = b, (iv) x = -1/2, y = 2, (v) $x = \frac{32}{10ab}$, $y = \frac{10}{10ab}$ a+ 10b (vi) x = 0, y = 0, (vii) x = 0.5, y = 0.7, (viii) x = 3, y = -1, (ix) x = 2, y = -1Long answer type questions **22.** x = -1 and y = 2**24.** x = 3, y = 2 **25** (2, 5), (-4, 2), (1, 3) **23.** x = 1, y = 326. 12 sq. units **27.** (i) x = 2, y = 3, (ii) x = 1/5, y = 1/7, (iii) x = 1/2, y = 1/, (iv) x = 1, y = 2, (v) x = -1/2, y = 1/7(vi) x = 3, y = 2, (vii) x = 5, y = 3, (viii) x = 3, y = 2, ix) x = 3, y = 6**28.** ` 750 29. A : 34 mangoes, B : 62 mangoes **30.** ` 40, ` 170 31. 25 coins of each kind...... 32 . 5, 3 **34.** 93 **33.** 628, 372 **35.** 78 **36.** 64 5 38. 37. q **39.** My present age is 45 years and my son's present age is 15 years. 40 . Father's age = 40 years, Son's age = 10 years. **41.** A's age = 27 years, B's age = 29 years or A's age = 26 years, B's age = 24 years **42.** Father's age = 45 years 43. 35 km/ h & 25 km/hr 44. Speed of train = 60 km/ h & Speed of car = 80 km/hr 45. Speed of sailor = 10 km/ h & Speed of current = 2 km/ 46. Speed of boat = 8 km/ h & Speed of stream = 3 km/hr 47. X's speed = 10/3 km/hr, Y's speed = 5 km/hr 48. Distance = 36 km, Original speed = 4 km/ hr 49. 720 km **50.** 3A = 20°, 3B = 40°, 3C = 120° **51.** 3A = 65°, 3B = 55°, 3C = 115°, 3D = 125° High order thinking skills (HOTS) **53.** x = 3, y = 2**54.** x = 13, y = 10 55. C.P. of chair = 600, C.P. of Table = 700 6. Man : 140 days. Boy : 280 days 57. Tea set Rs.100, Lemon Set :` 80 58. 8 sq. unit **59.** 83 60. 500 bananas

Mathematics