LINEAR EQUATIONS IN ONE VARIABLE

1. Solve the following linear equations and verify the solution.

   a) $7x - 1 = 13$
   b) $2x + 3 = 6$
   c) $x - \frac{1}{2} = \frac{1}{5}$
   d) $3x + \frac{1}{2} = \frac{1}{5}$

2. What number should be subtracted from $3\frac{1}{2}$ to get $1\frac{5}{7}$?
3. By what number should we divide $1\frac{1}{2}$ to get $1\frac{5}{7}$?
4. The sum of $2\frac{1}{8}$ and $\frac{2}{5}^{th}$ of a rational number is 3. Find the rational number.
5. If the perimeter of a rectangle with dimensions $(2x + 10)$ and $(x + 20)$ is 240 cm. find its dimensions.
6. The sum of three consecutive multiples of 3 is 63. find the number.
7. Meena has some amount of money. She gets Rs.150 from her father which makes the amount four times the original amount with her. How much money does Meena have now?
8. From the same starting point, Jim walks with a speed of 3mph and john runs at 5 mph. How long after they begin john covers 5 miles more than Jim?
9. Rita has 15 coins in denominations of 25 paise and 50 paise. If the amount with her is Rs.5 find the number of coins of each denomination with her.

LINEAR EQUATIONS IN ONE VARIABLE

1. Solve the following linear equations and verify the solution.

a) $2x + 5 = 7x—2$

b) $x + \frac{3}{4} = 2x - \frac{1}{7}$

c) $2x + (3x—4) = x$

d) $\frac{1}{2}x - \frac{5}{6} = \frac{3}{7}x - \frac{1}{3}$

2. The sum of the digits of a two digit number is 8. The digit in the units place is 1 more than six times the digit in the tens place. Find the number.

3. The number obtained by reversing a two digit number is 18 more than the original number. if the sum of its digits is 8. find the number.

4. The speed of a river current is 5 km/h. A boat travels 3 hours downstream and covers 5km more than the distance covered in four hours upstream. Find the boat's speed in still water.

5. Kate has some notes of denominations Rs.20 and Rs.50. The number of Rs.20 notes is twice the number of Rs.50 notes. If the amount with her is Rs.300 more than five times the number of notes. find the number of notes of each denomination with her.

6. The sum of the ages of A and B Is 46. Five years ago, the age of B was twice that of A. Find A's age.

7. Ramesh bought a box of coloured chalks. $\frac{1}{3}$ of the chalks were yellow, $\frac{1}{4}$ were red, $\frac{1}{4}$ were blue and remaining 16 were green, find the total number of chalks in the box.

8. A shopkeeper sells an eraser at Rs.2 and a sharpener at Rs.3. Ram purchases some erasers and sharpeners from the shop. While calculating the amount, mistakenly he considers Rs.3 for eraser and Rs.2 for sharpener. This amount is Rs.10 more than the actual amount. It Ram purchases 20 items in all, find the number of sharpeners he purchased.

LINEAR EQUATIONS IN ONE VARIABLE

1. Solve the following linear equations and verify the solutions.
   a) $\frac{2x+5}{7x-1} = \frac{1}{3}$
   b) $\frac{x}{2x-2} = \frac{x+5}{2x+6}$
   c) $\frac{1}{x+2} + \frac{1}{4} = \frac{1}{2}$
   d) $\frac{1}{x+1} = \frac{3}{4(x-1)}$

2. The denominator of a fraction is 1 more than twice its numerator If the numerator and the denominator are both decreased by 1 then the number obtained is . Find the fraction.

3. The ratio of the ages of Raj and Sameer is 3:4. After 4 years the ratio of their ages will be 4:5. Find their ages.

4. The present age of David's mother is 1 more than four times his present age. After 15 years, the ratio of David' age to this mother's age is 1:2. Find the present age of David.

5. The length and the breadth of a rectangle are in the ratio 1:2. If the length is increased by 2 cm and breadth by 3 cm then the ratio of the perimeter of the new rectangle to the perimeter of the original rectangle is $\frac{4}{3}$. Find the dimensions of the original rectangle,

6. The ratio of a two digit number to the number obtained by reversing its digits is 4:7. if the sum of its digits is 9. find the number.

7. The speed of a river current is 5.km/h A boat takes the same time to travel 8 km upstream as it does to travel 12 km downstream, Find the boat's speed in still water.

8. The boat's speed in calm water is 30 km/h. A boat takes the same time to travel 10 km upstream as it does to travel 15 km downstream. Find the Speed of the river current.

9. The digit in the tens place of a two-digit number is 3 less than the digit its Units place. Find the number if the quotient obtained when the number is divided by the sum of its digits is 4.

1. Match the following equations in the first column to the corresponding solution in the second column.

	Equations		Solutions
a)	$3x + (2x-3) = 2$	i.	3
b)	$\frac{x}{12} = \frac{x+3}{21}$	ii.	1
c)	$\frac{1}{3}x + \frac{2}{7} = \frac{3}{7}x$	iii.	6
d)	$\frac{x+1}{x-1} = \frac{7}{5}$	iv.	4

2. State true or false.
   a) The equation $2x + y = 20$ is linear equation.
   b) The equation $2xy = 20$ is linear equation.
   c) A linear equation can have more than one solution.
   d) The degree of a linear equation is 1.
3. What number should be subtracted from $1\frac{3}{5}$ to get $\frac{5}{7}$?
4. The difference of two natural numbers is 10 and their sum is 20. Find the numbers.
5. The difference of two natural numbers is 14. The quotient when one number is divided by the other is 3, Find the numbers.
6. The measures of the angles of a triangle are $(3x + 20)°$, $(3x - 20)°$ and $(2x + 20)°$. Find the measures.