

Linear Equations in One Variable

<1M>

1. The solution of the equation $\frac{6x + 7}{3x + 2} = \frac{4x + 5}{2x + 3}$ is:
- (A) $-\frac{11}{9}$
 - (B) $-\frac{13}{4}$
 - (C) $-\frac{9}{14}$
 - (D) $-\frac{2}{13}$
2. Divide 184 into two parts such that one third of one part may exceed one seventh of the other part by 8. The numbers are:
- (A) 46 , 138
 - (B) 32 , 152
 - (C) 64 , 120
 - (D) 72 , 112
3. A fruit vendor buys some oranges at the rate of Rs 5 per orange. He also buys an equal number of bananas at the rate of Rs. 2 per banana. He sold the oranges at a profit of 20% and the bananas at a profit of 15%. At the end of the day all the fruits are sold out. His total profit is Rs 390, find the number of oranges purchased.
- (A) 100
 - (B) 200
 - (C) 300
 - (D) 400
4. Two years ago, Dilip was three times as old as his son and two years hence twice his age will be equal to five times that of his son. Find their present ages:
- (A) 10 yrs, 20 yrs
 - (B) 15 yrs, 19 yrs
 - (C) 14 yrs, 38 yrs
 - (D) 35 yrs, 60 yrs
5. The distance between two stations is 425 km. Two trains start simultaneously from these stations on parallel tracks to cross each other. The speed of one of them is greater than that of the other by 5 km/h. If the distance between the two trains after 3 hours of their start is 20 km, find the speed of each train.
- (A) 65 km/h , 70 km/h
 - (B) 70 km/h, 85 km/h

(C) 100 km/h ,30 km/h

(D) 210 km/h, 30 km/h

6. A steamer goes down stream and covers the distance between 2 ports in 4 hours while it covers the same distance up stream in 5 hours. If the speed of the stream is 2 km/h, find the speed of the steamer in still water.

(A) 9 km/h

(B) 11km/h

(C) 21 km/h

(D) 18 km/h

7. The length of a rectangle is more than its breadth by 9 cm. If the length and breadth are each increased by 3 cm, the area of new rectangle will be 64cm^2 more than that of the given rectangle. Then the length and breadth of the rectangle are:

(A) $l = 10\text{cm}$, $b = 6\text{ cm}$

(B) $l = 0\text{ cm}$, $b = 15\text{ cm}$

(C) $l = 17\text{cm}$, $b= 8\text{ cm}$

(D) $l = 21\text{ cm}$, $b = 30\text{ cm}$

8. The sum of the digits of a two digit number is 15, if the number formed by reversing the digits is less than the original number by 27, the original number is:

(A) 96

(B) 69

(C) 76

(D) 84

9. The denominator of a rational number is greater than its numerator by 3, if 3 is subtracted from the numerator and 2 is added to the denominator the new

number becomes $\frac{1}{5}$. The original number is:

(A) $\frac{6}{8}$

(B) $\frac{5}{8}$

(C) $\frac{7}{8}$

(D) $\frac{9}{8}$

10. Two complementary angles are equal, each angles will be:

(A) 45°

(B) 60°

(C) 90°

(D) 55°

11. Two numbers are in ratio 6 : 7. If the sum of the numbers is 169, then the numbers are:

(A) 78, 91

(B) 80, 89

(C) 65, 104

(D) 104, 65

12. Two complementary angles differ by 16° . The angles are:

(A) 53° , 37°

(B) 56° , 40°

(C) 62° , 28°

(D) 59° , 31°

13. A two digit number whose sum of digits is 14. If 36 is added to the number, its digits are interchanged. The number is:

(A) 68

(B) 95

(C) 86

(D) 59

14. Solve the equation: $\frac{1}{x} + \frac{2}{x} = 3$.

15. Two numbers are in ratio 5 : 8. If the sum of the numbers is 182, then the numbers are:

(A) 70, 112

(B) 80, 102

(C) 58, 124

(D) 30, 66

16. The ratio of the present ages of Devang and Devesh is 4 : 7. Six years later, the sum of their ages is 34 years. The present ages of Devang and Devesh is:

(A) 12 years, 21 year

(B) 8 years, 14 years

(C) 14 years, 20 years

(D) None of these

17. The solution of the equation $\frac{3x+5}{2x+1} = \frac{1}{3}$ is:

(A) -1

(B) 3

(C) -2

(D) 5

18. The solution of $\frac{y+6}{4} + \frac{y-3}{5} = \frac{5y-4}{8}$ is:

(A) 8

(B) 6

(C) 4

(D) 2

19. If $\frac{1}{4}x + \frac{1}{6}x = x - 7$, then value of x is:

(A) 14

(B) 9

(C) 12

(D) 10

20. If $\frac{5x-4}{8} - \frac{x-3}{5} = \frac{x+6}{4}$, then the value of x is:

(A) 4

(B) 8

(C) 10

(D) 12

21. Solve the equation: $\frac{3x+5}{2x+7} = 4$.

22. If $\frac{1}{2}$ is subtracted from a number and the difference is multiplied by 4, the result is 5. Find the number.

23. Solve the equation: $\frac{5x-7}{3x} = 2$.

$$\frac{\frac{3}{4}y + 7}{\frac{2}{5}y - 4} = \frac{5}{4}$$

24. Solve the equation: _____.

25. Solve the equation: $5x - 3 = 3x - 5$.

$$\frac{2x}{3x + 1} = -3.$$

26. Solve the equation: _____.

$$\frac{6}{2x - (3 - 4x)} = \frac{2}{3}.$$

27. Solve the equation: _____.

$$\frac{x}{5} + 1 = \frac{1}{15}.$$

28. Solve the equation: _____.

29. If two third of a number is increased by 9, the sum will be 19 find the number.

30. Four-fifth of a number is greater than three-fourth of the number by 4. The number is:

- (A) 12
- (B) 64
- (C) 80
- (D) 102

31. Solution for x in $4(2x - 3) + 5(3x - 4) = 14$.

- (A) 4
- (B) 3
- (C) 2
- (D) 5

32. If we subtract $\frac{2}{5}$ from a number and divide the result by $\frac{8}{3}$, we get $\frac{11}{4}$, the number is:

- (A) $\frac{16}{15}$
- (B) $\frac{22}{15}$
- (C) $\frac{27}{32}$
- (D) None of these

33.

$$\frac{x+3}{x-3} + \frac{x+2}{x-2} = 2$$

Value of x in

- (A)

(B)

7

(C)

2

(D)

$$\frac{5}{12}$$

34. The sum of first three consecutive multiples of a number is 162, the number is:

(A) 16

(B) 22

(C) 25

(D) 27

35. If the sum of two positive number is 36 and one number 'x' is double the other then the equation is.

(A) $\frac{x}{x+36} = 2$

(B) $\frac{x}{36-x} = 2$

(C) $\frac{(36-x)}{x} = 2$

(D) $\frac{x}{(36-x)} = 2$

36. Solution of x in $3x + \frac{15}{4} = 9$

(A) $\frac{3}{4}$

(B) $\frac{7}{4}$

(C) 2

(D) $\frac{4}{7}$

37. Value of x in $2(6x - 5) = -(3x + 1) + 6$

- (A) 1
- (B) 2
- (C) 3
- (D) 4

38. If $\frac{6}{2y - (3 - 4y)} = \frac{2}{3}$ then value of y is:

- (A) 2
- (B) $\frac{21}{18}$
- (C) 3
- (D) -6

39. The denominator of a rational number is greater than its numerator by 5. If the numerator is increased by 12 and denominator decreased by 3, the obtained rational number is $\frac{5}{3}$. The rational number is:

- (A) $\frac{3}{5}$
- (B) $\frac{13}{18}$
- (C) $\frac{8}{3}$
- (D) None of these

40. The perimeter of a rectangular field 154 meter, its length is 2 meter more than twice its breadth. If a 2 meter wide path is around the field, then the length of rectangular path is:

- (A) 52 m
- (B) 29 m
- (C) 48 m
- (D) 56 m

41. One of the angle of the triangle is equal to the sum of the other two. If the ratio of the other two angle is 2:3 then the angles (in degree) are.

- (A) 90, 36, 54
- (B) 40, 50, 90
- (C) 30, 60, 90

(D) 38, 57, 85

<2M>

42. Solve the equation: $4(3w + 2) - 5(6w - 1) = 2(w - 8) - 6(7w - 4) + 4w$.

43. The ratio of two complementary angles is 4 : 5. Find these angles and ratio of their supplementary angles.

44. Sum of three consecutive multiples of 7 is 777, find the numbers.

45. Sum of three consecutive integers is 246. Find the integers.

46. Solve for p, $0.25(4p - 3) = 0.05(10p - 9)$.

47. Sum of two numbers is 52, if second number is 10 more than first.

Find the numbers.

48. Solve the equation: $0.6x + 0.8 = 0.28x + 1.16$

49. Solve the equation: $\frac{x^2 + 4}{3x^2 + 7} = \frac{1}{2}$.

50. Solve the equation: $x - 2x + 2 - \frac{16}{2}x = 3 - \frac{7}{2}x$.

51. Sum of three consecutive even integers is 270. Find the integers.

<3M>

52. The perimeter of a triangle is 49 cm. The one side is 7 cm longer than the other and 5 cm shorter than the third. Find the length of each side of the triangle

53. Nisha has rectangular plot of land that has been fenced with 300m long wires. Find the dimensions of the plot, if its length is twice the breadth

54. Each side of a triangle is increased by 10 cm; if the ratio of the perimeter of the new triangle and the given triangle is 5:4, find the perimeter of given triangle

55. The length of a rectangle is 15 cm more than its width. The perimeter is 150 cm. Find the dimensions of the rectangle.

56. Divide 184 into two equal parts such that one third of one part may exceed one seventh of the other part by 8.

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57. Reeta receives a certain amount of money on her retirement from her company. She gives half of this money and additional sum of Rs. 10000 to her daughter. She also gives one third of the money received and an additional sum of Rs. 3000 to her son. If the daughter gets twice as much as her son, find the total amount of money Reeta received from her company.

58. The sum of the weights of an iron piece and of a copper piece is 1280 gm. The volume of the copper piece is twice that of the iron piece. If the weight of 1 cubic centimeter of iron is 7.8gm and that of copper is 8.9 gm. Find the volume of each piece.

59. A fruits vender buys some mangoes at Rs. 10 each and, same number of oranges at Rs. 5 each, he makes a profit of 30% on selling of oranges and 15% on mangoes, if his total profit of a day is Rs. 540. Find the numbers of mangoes he purchased.

60. A steamer is going downstream in a river and cover a distance between two villages in 20 hours and same distance it covers in 25 hours when he return back in upstream if the speed of the river is 4 km/h. Find the distance between two villages.

61. Srishti has a total of Rs. 780 as a currency of Rs. 10, Rs. 20 and Rs. 50. The ratio of the number of notes of Rs. 50 and Rs. 10 is 3 : 2. If she has total 32 notes. How many notes of each suit she has?