

2. Linear Equations in One Variable

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

Mark (1)

Q 2 The two third of a number increased by 9 equals 19. Find the number.

Mark (1)

Q 3 Solve the equation: $\frac{6}{2x - (3 - 4x)} = \frac{2}{3}$

Mark (1)

Q 4 Solve the equation: $\frac{2x}{3x + 1} = -3$.

Mark (1)

Q 5 Solve the equation: $5x - 3 = 3x - 5$

Mark (1)

Q 6 Solve the equation: $\frac{5x - 7}{3x} = 2$

Mark (1)

Q 7 Solve the equation: $\frac{x}{5} + 1 = \frac{1}{15}$

Marks (2)

Q 8 Solve the equation: $x - 2x + 2 - \frac{16}{2}x = 3 - \frac{7}{2}x$

Marks (2)

Q 9 Solve the equation: $\frac{x^2 + 4}{3x^2 + 7} = \frac{1}{2}$

Marks (2)

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

Q 10 Solve the equation:

Marks (2)

Q 11 If $\frac{1}{2}$ is subtracted from a number and the difference is multiplied by 4, the result is 5. Find the number.

Marks (2)

Q 12 Solve the equation: $0.6x + 0.8 = 0.28x + 1.16$

Marks (2)

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

Q 13 Solve the equation:

Marks (2)

Q 14 Solve the equation: $4(3w + 2) - 5(6w - 1) = 2(w - 8) - 6(7w - 4) + 4w$

Marks (2)

Q 15 The sum of two numbers is 52. The second number is 10 more than the first. Find the numbers.

Marks (2)

Q 16 The sum of three consecutive even integers is 270. Find the integers.

Marks (2)

Q 17 The sum of three consecutive integers is 246. Find the integers.

Marks (2)

Q 18 The sum of three consecutive multiples of 7 is 777, find the numbers.

Marks (2)

Q 19 The ratio of two complementary angles is 4 : 5. Find these angles and ratio of their supplementary angles.

Marks (2)

Q 20 The sum of the digits of a two-digit number is 14. If 36 is added to the number, its digits are interchanged. Find the number.

Marks (2)

Q 21 Solve for x: $4x + 7 = 10 + 2x$

Marks (2)

Q 22 Solve for p: $0.25(4p - 3) = 0.05(10p - 9)$

Marks (2)

Q 23 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.

Marks (3)

Q 24 Nisha has a rectangular plot of land that has been fenced with 300 m long wires. Find the dimensions of the plot, if its length is twice the breadth.

Marks (3)

Q 25 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 the given triangle.

Marks (3)

Q 26 The length of a rectangle is 15 cm more than its width. The perimeter is 150 cm. Find the dimensions of the rectangle.

Marks (3)

Q 27 The sum of two numbers is 184. One-third of one number exceeds one-seventh of the other number by 8. Find the two numbers.

Marks (3)

Q 28 Solve for x: $3(5x - 5) - 2(9x - 8) = 4(8x - 13) - 17$

Marks (3)

Q 29 The present ages of Veeru and Neeru are in the ratio 3:4. Five years from now, the ratio of their ages will be 4:5. Find their present ages.

Marks (4)

Q 30 The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

Marks (4)

Q 31 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 7.8 gm and that of copper is 8.9 gm. Find the volume of each piece.

Marks (4)

Q 32 Srishti has a total of Rs 780 as currency notes in the denominations of Rs 10, Rs 20 and Rs 50. The ratio of the number of Rs 50 notes and Rs 10 notes is 3 : 2. If she has a total of 32 notes, how many notes of each denomination she has?

Marks (4)

Q 33 Reeta received a certain amount of money on her retirement from her company. She gives half of this money and additional sum of Rs 10,000 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.

Marks (4)

Q 34 The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

Marks (4)

Q 35 Five years before, the age of Neeraj and Neera was in the ratio 4:5. The ratio of their present ages is 5:6. Find their present ages.

Marks (4)

Q 36 The sum of three consecutive multiples of 8 is 792. Find these multiples.
Marks (4)

Q 37 The sum of three consecutive multiples of 9 is 795. Find these multiples.
Marks (4)

Q 38 Five years before, the age of Neeraj and Neera was in the ratio 4:5. The ratio of their present ages is 5:6. Find their present ages.
Marks (4)

Q 39 The present ages of Veeru and Neeru are in the ratio 3:4. Five years from now, the ratio of their ages will be 4:5. Find their present ages.
Marks (4)

Most Important Questions

Q 1 Solve: $-3(x+2) = -12$

Q 2 $5a + 5 = 20$

Q 3 $-2 + g = 7$

Q 4 $7a + 2 = -12$

Q 5 If $3x + 2 = 12$, then find the value of $6x + 4$.

Q 6 Solve the following equation: $2(7b + 12) = 24$

Q 7 $4 - 5x = -21$

Q 8 If $11x - 7 = 26$, then find the value of the expression $(x - 3)$.

Q 9 Sum of three consecutive even integers is 270. Find the integers.

Q 10 Sum of two numbers is 52; if second number is 10 more than first, find the number.

Q 11 Sum of three consecutive multiples of 7 is 777 find the numbers.

Q 12 The ratio of two complementary angles is 4 : 5. Find these angles and ratio of their supplementary angles.

Q 13 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.

Q 14 The length of a rectangle is 15 cm more than its width. The perimeter is 150 cm. Find the dimensions of the rectangle.

Q 15 Naveen's present age is three times of age of his son. After 5 years the difference between the ages of both is 30. Find the present age of Naveen.

Q 16 Solve the equation: $5x - 3 = 3x - 5$.

Q 17
$$5x - \frac{3}{2} = 2x + \frac{7}{2}$$

Q 18 Simplify : $3t + (t - 2) = 2 - 5t$

Q 19
$$\frac{3x}{2} - \frac{3}{2} = \frac{5x}{2} + \frac{7}{2}$$

Q 20 Simplify :
$$m = \frac{4}{5}(m - 10)$$

Q 21 Simplify : $0.03a + 2 = 8 - 0.02x + 2(0.6x + 1)$

Q 22 Solve the equation $0.6x + 0.8 = 0.28x + 1.16$.

Q 23 Solve the equation:
$$4(3w + 2) - 5(6w - 1) = 2(w - 8) - 6(7w - 4) + 4w$$

Q 24 The sum of the digits of a two-digit number is 8. If 18 is subtracted from the number, its digits are interchanged. Find the number.

Q 25 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.

Q 26 Solve the equation: $\frac{1}{x} + \frac{2}{x} = 3$.

Q 27 Solve the equation:
$$\frac{\frac{3}{4}y + 7}{\frac{2}{5}y - 4} = \frac{5}{4}$$

Q 28 Solve the equation:
$$\frac{6x + 3}{2} + 1 = \frac{x - 2}{6}$$

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

Q 30 Solve the equation : $\frac{a}{2} - \frac{3a}{4} = 21 - \frac{5a}{6}$.

Q 31 If $\frac{1}{2}$ is subtracted from a number and difference is multiple by 4, the result is 5 find the number.

Q 32 Solve the equation : $x - 2x + 2 - \frac{16}{2}x = 3 - \frac{7}{2}x$.

Q 33 $y - \frac{y-1}{2} = 1 - \frac{y-2}{3}$

Q 34 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.

Q 35 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.

Q 36 Present ages of Seema and Sharad are in the ratio 5 : 6. Twelve years from now the ratio of their ages will be 9 : 10. Find their present ages.