

CLASS IX – MATHEMATICS – CHAPTER 04
LINEAR EQUATION IN TWO VARIABLES

Name:

Date:

- 01.** The solution of a linear equation is not effected when
(a). The same numbers are added to both sides of the equation.
(b). We multiply or divide both the sides of the equation by the same non-zero numbers.
(c). We add a number to one side and subtract the same number from the other side of the equation
(d). Both (a). and (b).
- 02.** Which of the following is not a solution of $x + 2y + = 6$.
(a). (0,3) (b). (4,2) (c). (2,2) (d). (6,0)
- 03.** The geometrical representation of a linear equation
(a). Straight line (b). Curve (c). Parabola (d). Either (b). or (c).
- 04.** The points (2,0), (-3,0) and (4,0) lie
(a). On the origin (b). On the X-axis (c). Y-axis (d). parallel to X-axis
- 05.** The points (1,3), (2,3) and (4,3) from line
(a). Which is parallel to the x-axis (b). Which is parallel to the y-axis
(c). Passing through the origin (d). None of these
- 06.** A linear equation in two variables
(a). Has a unique solution (b). Has two solution
(c). Has infinitely many solutions (d). two or four solution
- 07.** The geometrical representation of a linear equations
(a). Straight line (b). Curve
(c). Parabola (d). b or c
- 08.** Which of the following is not a solution of $x + 2y = 6$.
(a). (0,3) (b). (4,2) (c). (2,2) (d). (6,0)
- 09.** $x = -5$ can be written in as equation in two variable
(a). $1.x + 1.y = 5$ (b). $1.x + 0.y = -5$ (c). $1.x + 0.y + 5 = 0$ (d). Both b and c
- 10.** The reason that a degree one polynomial equation $ax + by + c = 0$, is called a linear equation is that
(a). It has infinitely many solution (b). The geometrical representation is a straight line
(c). It has two variables (d). Both a and b
- 11.** Find out which of the following equation have $x=2, y=1$ as solution.
(1) $2x + 5y = 9$ (2) $5x + 3y = 14$ (3) $2x + 3y = 7$

DCA CLASSES

Q01. Examine if -2 is a solution of $2x + 4 = 5$.

Q02. Find the value of x that satisfies the equation $2.4x - 0.4x = 6$.

Q03. Solve:

(a). $2x + 2 = 10$ (b). $\frac{x^2+5x+4}{x^2+3x+2} = \frac{3}{2}$ (c). $2\frac{1}{2}x + 3\frac{1}{2}x = 56 - 2x$ (d). $\frac{6}{x} + 11 = \frac{2}{x} + 9$ ($x \neq 0$)
(e) $\frac{x^2-9}{x+3} = 5$ (f) $\frac{3x-5}{7x-5} = \frac{1}{9}$ (g) $\frac{3x+2}{x-1} = \frac{3x+4}{x+1}$ (h) $7x + 3 = 52$
(i). $25x - 19 - [3 - \{4x - 5\}] = 3x - (6x - 5)$

Q04. Write four solutions for the following equations $\pi x + y = 9$.

Q05. Express Y in terms of x and x in terms of Y from the following equation $7x - 8y + 5 = 0$.

Q06. Draw the graph of $3x + 2y = 6$, Find the coordinates of the point where the graph cuts the y-axis.

Q07. Draw the graph of $x - y = 2$, from the graph check whether $x=2, y=2$ is a solution of the given equation or not.

Q08. Express the following linear equations in the form $ax + by + c = 0$ and indicate the values of a, b and c in each case (a). $2x + 3y = 9.35$ (b). $x - y/5 - 10 = 0$ (c). $2x - 5y = 0$ (d). $3x + 2 = 0$

Q09. If the point (3,4) lies on the graph of the equation $3y = 7 + ax$, find the value of a.

Q10. Draw the graph of the equation $2x + y = 6$, Read a solution of the equation from the graph and verify the same by actual substitution. Also find the points where the line meets the two axis.

Q11. A number is three times the other. Write a linear equation in two variables to represent this statement.

Q12. The work done by a body on application of a constant force is directly proportional to the distance travelled by the body. Express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Read the graph the work done when the distance travelled by the body is. (1) 0.5 units (2) 0 units

Q13. Find the value of K if $x = 2, y = 1$ is a solution of the equation $2x + 3y = k$.

DCA CLASSES

WORD PROBLEMS

NUMBER SYSTEM

- Q01.** The sum of two numbers is 25. One of the numbers exceeds the other by 9. Find the numbers.
- Q02.** The difference between the two numbers is 48. The ratio of the two numbers is 7:3. What are the two numbers?
- Q03.** A number is divided into two parts, such that one part is 10 more than the other. If the two parts are in the ratio 5 : 3, find the number and the two parts.
- Q04.** The sum of two consecutive multiples of 5 is 55. Find these multiples.
- Q05.** If $\frac{3}{5}$ of a number is 4 more than $\frac{1}{2}$ the number, then what is the number?
- Q06.** The sum of three consecutive multiples of 4 is 444. Find these multiples.
- Q07.** The denominator of a rational number is greater than its numerator by 3. If the numerator is increased by 7 and the denominator is decreased by 1, the new number becomes $\frac{3}{2}$. Find the original number.
- Q08.** The sum of the digits of a two-digit number is 7. If the number formed by reversing the digits is less than the original number by 27, find the original number.
- Q09.** Divide 28 into two parts in such a way that $\frac{6}{5}$ of one part is equal to $\frac{2}{3}$ of the other.
- Q10.** If 3 is subtracted from seven times a number, the result is 53. Find the number.
- Q11.** Find two numbers such that one exceeds the other by 11 and their sum is 73.
- Q12.** Three-fourth of a number is more than one-fourth of a number by 2. Find the number.
- Q13.** Divide 22 into two parts in such a way that $\frac{2}{3}$ of one part is equal to $\frac{1}{4}$ of the other.
- Q14.** Two numbers are such that the ratio between them is 5 : 2. If each is increased by 1 the ratio between the new numbers so formed is 7 : 3. Find the original number.
- Q15.** Three numbers are in the ratio 2 : 3 : 4 and their sum is 54. Find the number.
- Q16.** The sum of three consecutive even numbers is 54. Find the numbers.
- Q17.** The difference between two positive integers is 32. The ratio of these integers is 1 : 3. Find these integers.
- Q18.** The numerator of a fraction is 5 less than the denominator. If 2 is added to both numerator and denominator, it becomes $\frac{4}{5}$. Find the fraction.
- Q19.** The numerator of a fraction is 1 less than the denominator. If numerator is decreased by 2 and denominator is increased by 3, the fraction becomes $\frac{1}{4}$. Find the fraction.
- Q20.** The sum of the digits of a 2 digit number is 8. The number obtained by interchanging the digits exceeds the original number by 18.
- Q21.** A number consists of two digits whose sum is 5. If 9 is subtracted from the number the digits are reversed. Find the number.
- Q22.** A number consists of two-digits. The digit at the units place is 3 times the digit at the tens place. If 36 is added to the number, the digits are reversed. Find the number.
- Q23.** The digit at ten's place of a two digit number is three times the digit at one's place. If the sum of this number and the number formed by reversing its digits is 88, form an equation in linear equation in one variable to solve the problem.
- Q24.** The sum of two numbers is 2490. If 6.5% of one number is equal to 8.5% of the other. Form an equation in linear equation in one variable to solve for the numbers.
- Q25.** A number has two digits whose sum is 9. If 27 is added to the number, the digits get interchanged. Find the number.
- Q26.** Divide 184 into two parts such that one-third of one part may exceed one seventh of the other part by 8.

DCA CLASSES
AREA PERIMETER

- Q01.** The length of a rectangle is twice its breadth. If the perimeter is 72 metre, find the length and breadth of the rectangle.
- Q02.** The length of the rectangle is 4 times its width. If the perimeter of the rectangle is 80 m, find the length and breadth of rectangle.
- Q03.** Length of rectangle is 4 m less than 3 times its breadth. If the perimeter of rectangle is 32 m. Find its length and breadth
- Q04.** The length of a rectangle is 10 m more than its breadth. If the perimeter of rectangle is 80 m, find the dimensions of the rectangle.
- Q05.** A 300 m long wire is used to fence a rectangular plot whose length is twice its width. Find the length and breadth of the plot.
- Q06.** The length of the rectangle exceeds its breadth by 3 cm. If the length and breadth are each increased by 2 cm, then the area of new rectangle will be 70 sq. cm more than that of the given rectangle. Find the length and breadth of the given rectangle.
- Q07.** The length of a rectangular plot is 5 times its breadth. If the perimeter of the plot is 120 m. Form the linear equation in one variable to find the dimensions of the plot.
- Q08.** The length of a rectangular plot exceeds its breadth by 10 m. The perimeter of such a plot is 140 m. Form the linear equation in one variable to find the dimensions of the plot.
- Q09.** Two equal sides of an isosceles triangle are each 3 m less than thrice the third side. If the perimeter of the triangle is 123. Then, write the equation in linear equation in one variable to solve for the sides of the triangle.
- Q10.** The length of a rectangular plot exceeds its breadth by 5 metres. If perimeter of the plot is 142. Find the dimensions of the plot.
- Q11.** The length of a rectangular field is thrice its breadth. If perimeter of the field is 200. Calculate the dimensions of the field.

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AGE

- Q01.** Aaron is 5 years younger than Ron. Four years later, Ron will be twice as old as Aaron. Find their present ages.
- Q02.** Robert's father is 4 times as old as Robert. After 5 years, father will be three times as old as Robert. Find their present ages.
- Q03.** Father's age is three times his son's age. Four years ago, he was 4 times his son's age. Find their present ages.
- Q04.** The present ages of Andy and Mike are in the ratio 5 : 3. If Andy had been 7 years older and Mike 7 years younger, the age of Andy would have been 3 times the age of Mike. Find their present ages.
- Q05.** Rene is 6 years older than her younger sister. After 10 years, the sum of their ages will be 50 years. Find their present ages.
- Q06.** My mother is 12 years more than twice my age. After 8 years, my mother's age will be 20 years less than three times my age. Find my age and my mother's age.
- Q07.** Adman's father is 49 years old. He is 5 years older than four times Adman's age. What is Adman's age?
- Q08.** Rajeev is 5 times older than his son. After 2 years sum of ages will be 40. Calculate their present ages.
- Q09.** The ages of Ramesh and Rahim are in the ratio 5:7. If Ramesh were 9 years older and Rahim 9 years younger, the age of Ramesh would have been twice the age of Rahim. Form an equation in linear equation in one variable to solve for the ages of the two.

ANGLES

- Q01.** The difference in the measures of two complementary angles is 12° . Find the measure of the angles.
- Q02.** Among the two supplementary angles, the measure of the larger angle is 36° more than the measure of smaller. Find their measures.
- Q03.** In an isosceles triangle, the base angles are equal and the vertex angle is 80° . Find the measure of the base angles.
- Q04.** In a class of 42 students, the number of boys is $\frac{2}{5}$ of the girls. Find the number of boys and girls in the class.
- Q05.** A bag contains some number of white balls, twice number of white balls are blue balls, thrice the number of blue balls are the red balls. If the total number of balls in the bag are 27. Calculate the number of balls of each color present in the bag.
- Q06.** 50 kg of an alloy of lead and tin contains 60% of lead. How much lead must be melted into it to make the alloy contain 75% of the lead?
- Q07.** In a class of 51 students, the number of girls is half the number of boys. Find the number of boys and girls.
- Q08.** In an examination 40% of marks is required to get pass. If Suman scores 200 and fails by 25 marks, find the maximum marks of the examination.

DCA CLASSES

MONEY

- Q01.** The cost of two tables and three chairs is \$705. If the table costs \$40 more than the chair, find the cost of the table and the chair.
- Q02.** A total of \$10000 is distributed among 150 persons as gift. A gift is either of \$50 or \$100. Find the number of gifts of each type.
- Q03.** A sum of \$2700 is to be given in the form of 63 prizes. If the prize is of either \$100 or \$25, find the number of prizes of each type.
- Q04.** The cost of a pencil is 25 cents more than the cost of an eraser. If the cost of 8 pencils and 10 erasers is \$12.80, find the cost of each.
- Q05.** A dealer sold a television set for Rs10,000 and earned a profit of 20%. Find the cost price of the television set.
- Q06.** A dealer earned a profit of 10% by selling a radio for 880. Find the cost price of the radio.
- Q07.** Sumit has some 50 paise coins, some 1 Re coins and some 2 Rs coins in his bag. If the ratio of the coins in his bag is 2:3:4 and the total amount in his bag is Rs48. Calculate the number of each type of coins in Sumit's bag.
- Q08.** Ramesh left one-third of his property to his son, one-fourth to his daughter and the remainder to his wife. If his wife's share is Rs18,000. What was the worth of his total property?

SPEED

- Q01.** A motorboat goes downstream in river and covers a distance between two coastal towns in 5 hours. It covers this distance upstream in 6 hours. If the speed of the stream is 3 km/hr, find the speed of the boat in still water.
- Q02.** A motorboat goes downstream in the river and covers the distance between two coastal town in 3 hours. It covers this distance upstream in 4 hours. If the speed of the stream is 5 km/hr, find the speed of the boat in still water and the distance between the two coastal towns.
- Q03.** A boat travels 20 km upstream in a river in the same period of time as it takes to travel 30 km downstream. If the rate of the stream is 4 km/hr, find the speed of boat in still water.
- Q04.** A boat covers a certain distance downstream in 2 hours and it covers the same distance upstream in 3 hours. If the speed of the stream is 2 km/hr, find the speed of the boat.
- Q05.** The distance between two stations A and B is 230 km. two motor cyclists start simultaneously from A and B in the opposite directions and the distances between them after 3 hours is 20 km. if the speed of one motor cyclist is less than that of the other by 10 km/hr. form an equation in linear equation in one variable to solve for their respective speeds.
- Q06.** A man travelled $\frac{3}{5}$ of his journey by train, $\frac{1}{4}$ by a taxi, $\frac{1}{8}$ by bus and remaining 8 km on foot. Calculate the length of his total journey.