Maths Work Sheet

Class - X

Chapter: Linear Equations In Two Variables

Q01: Draw the graphs of \(2x + y = 6\) and \(2x - y + 2 = 0\). Shade the triangles bounded by these lines and the \(x\)-axis, \(y\)-axis. Also find the area of these triangles. [Ans.: (a) 8 sq. unit, (b) 2 sq. unit.]

Q02: Solve the following pair of equations:-

a) \(\frac{5}{x+y} + \frac{2}{x-y} = 3\), \(\frac{15}{x+y} - \frac{4}{x-y} = -1\) [Ans.: \(x = 3, y = 2\)]

b) \(99x + 101y = 499\), \(101x + 99y = 501\) [Ans.: \(x = 3, y = 2\)]

c) \(\frac{2}{3x+2y} + \frac{3}{3x-2y} = \frac{17}{5}\), \(\frac{5}{3x+2y} + \frac{1}{3x-2y} = 2\) [Ans.: \(x = 1, y = 1\)]

d) \(\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2\), \(\frac{40}{\sqrt{x}} - \frac{90}{\sqrt{y}} = -10\) [Ans.: \(x = 4, y = 9\)]

e) \(152x - 378y = -74\), \(-378x + 152y = -604\) [Ans.: \(x = 2, y = 1\)]

Q03: Solve for \(x\) and \(y\):-

a) \(x + y = a + b\), \(ax - by = a^2 - b^2\) [Ans.: \(x = a, y = b\)]

b) \(\frac{x}{a} + \frac{y}{b} = 2\), \(ax - by = a^2 - b^2\) [Ans.: \(x = a, y = b\)]

Q04: A boat can go 20 km upstream and 30 km downstream in 3 hours. It can go 20 km downstream and 10 km upstream in \(1 \frac{2}{3}\) hours. Find the speed of the boat in still water and the speed of the stream. [Ans.: 20 km/h, 10 km/h]

Q05: A man sold a chair and a table together for Rs. 12000 gaining 10% on the chair and 15% on the table. Had he sold them for Rs. 11625, the profit % would have interchanged. Find the C.P. of each of them. [Ans.: Rs. 9000, Rs. 1500]

Q06: In cyclic quadrilateral ABCD, \(\angle A = (2x + 4)^\circ\), \(\angle B = (y + 3)^\circ\), \(\angle C = (2y + 10)^\circ\) and \(\angle D = (4x - 5)^\circ\). Find the angles.

Q07: Students of a class are to stand in rows. If one student extra in a row, there would have been two rows less. If one student less in a row, there would have been 3 rows more. Find the number of students in the class. [Ans.: 60] \(\frac{200}{x} = 10\), \(\frac{250}{y} = 12\), \(\frac{300}{z} = 15\).
Q08: A says to B “if you give me 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? [Ans.: A = 34, B = 62]

Q09: A man when asked how many hens and cows he has, he told that his animals have 120 eyes and 180 legs. How many animals of each kind has he? [Ans.: 30 each]

Q10: 90% and 97% pure acid solution are mixed to obtain 21 liters 95% pure solution. How many liters of each solution are needed? [Ans.: 97% = 15 litres, 90% = 6 litres]

Prepared By:

Roy Mathew (IISR - Boys Section)