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برائے مہربانی نوٹس کا پی اور استعمال کرتے وقت اس لائسنس کا خیال رکھیں۔

**Q.1** Solve the following pair of equations in  $x$  and  $y$  graphically.

$$x + y = 0, \quad 2x - y + 3 = 0.$$

**Solution:**  $x + y = 0 \Rightarrow y = -x$ .

When  $x = 0$  then  $y = 0$ .

When  $x = 1$  then  $y = -1$ .

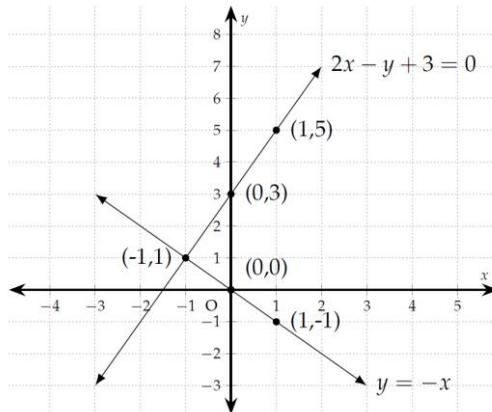
So the points  $(0, 0)$  and  $(1, -1)$  lies on the graph of  $x + y = 0$ .

Take  $2x - y + 3 = 0 \Rightarrow y = 2x + 3$ .

When  $x = 0$  then  $y = 3$ .

When  $x = 1$  then  $y = 5$ .

So the points  $(0, 3)$  and  $(1, 5)$  lies on the graph of  $2x - y + 3 = 0$ .



From graph, we see  $(-1, 1)$  is the common point in both equations.

**Q.2** Solve the following pair of equations in  $x$  and  $y$  graphically.

$$x + y + 1 = 0, \quad x - 2y = -1.$$

**Solution:**  $x + y + 1 = 0$

$$\Rightarrow y = -x - 1.$$

When  $x = -1$  then  $y = 0$ .

When  $x = 0$  then  $y = -1$ .

So the points  $(-1, 0)$  and  $(0, -1)$  lies on the graph of  $x + y + 1 = 0$ .

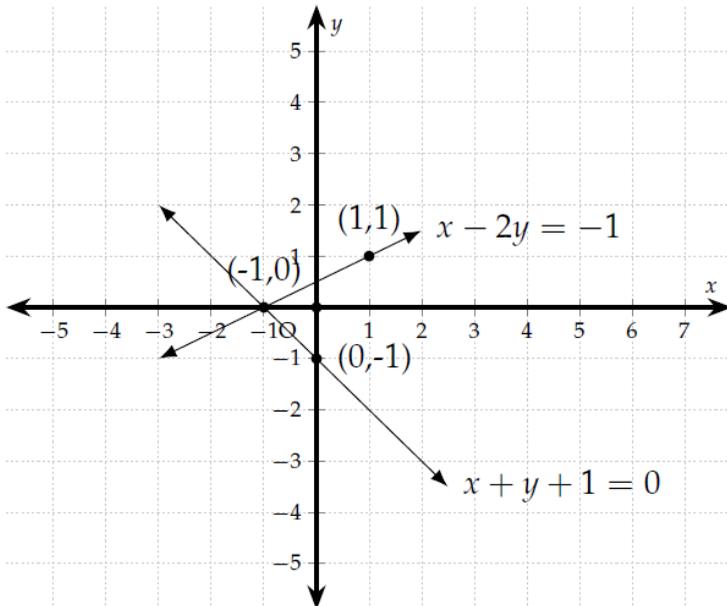
Take  $x - 2y = -1$

$$\Rightarrow y = \frac{1}{2}x + \frac{1}{2}.$$

When  $x = -1$  then  $y = 0$ .

When  $x = 1$  then  $y = 1$ .

So the points  $(-1, 0)$  and  $(1, 1)$  lies on the graph of  $x - 2y = -1$ .



From graph, we see  $(-1, 0)$  is the common point in both equations.

**Q. 3** Solve the following pair of equations in  $x$  and  $y$  graphically.

$$2x + y = 0, \quad x + 2y = 2.$$

**Solution:**  $2x + y = 0$

$$\Rightarrow y = -2x.$$

When  $x = 0$  then  $y = 0$ .

When  $x = 1$  then  $y = -2$ .

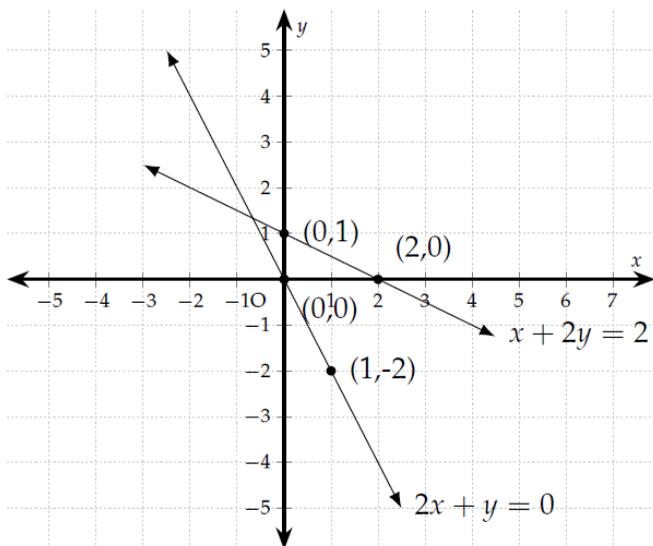
So the points  $(0,0)$  and  $(1,-2)$  lies on the graph of  $2x + y = 0$ .

Take  $x + 2y = 2 \Rightarrow 2y = 2 - x \Rightarrow y = 1 - \frac{1}{2}x$ .

When  $x = 0$  then  $y = 1$ .

When  $x = 2$  then  $y = 0$ .

So the points  $(0,1)$  and  $(2,0)$  lies on the graph of  $x + 2y = 2$ .



From graph, we see  $(-0.7, 1.3)$  is the common point in both equations.

**Q. 4** Solve the following pair of equations in  $x$  and  $y$  graphically.

$$x + y - 1 = 0, \quad x - y + 1 = 0.$$

**Solution:**  $x + y - 1 = 0$

$$\Rightarrow y = -x + 1.$$

When  $x = -1$  then  $y = 2$ .

When  $x = 0$  then  $y = 1$ .

So the points  $(-1, 2)$  and  $(0, 1)$  lies on the graph of  $x + y - 1 = 0$ .

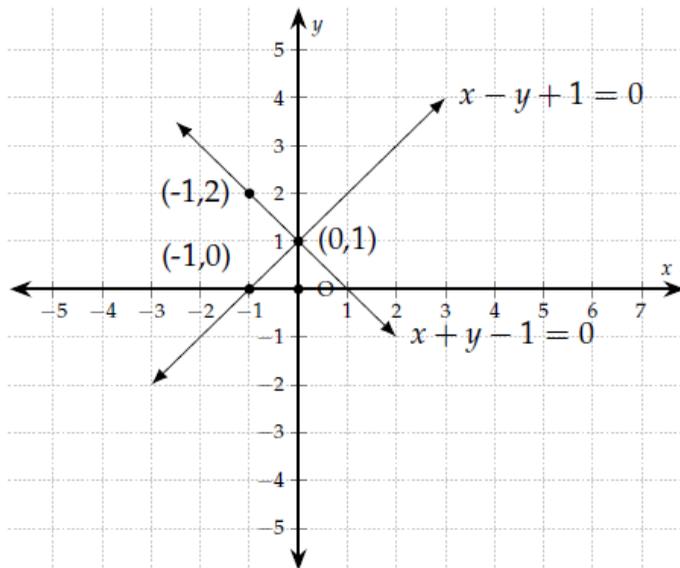
Take  $x - y + 1 = 0$

$$\Rightarrow y = x + 1.$$

When  $x = -1$  then  $y = 0$ .

When  $x = 0$  then  $y = 1$ .

So the points  $(-1, 0)$  and  $(0, 1)$  lies on the graph of  $x - y + 1 = 0$ .



From graph, we see  $(0, 1)$  is the common point in both equations.

**Q.5** Solve the following pair of equations in  $x$  and  $y$  graphically.

$$2x + y - 1 = 0, \quad x = -y.$$

**Solution:**  $2x + y - 1 = 0 \Rightarrow y = 1 - 2x.$

When  $x = -1$  then  $y = 3.$

When  $x = 0$  then  $y = 1.$

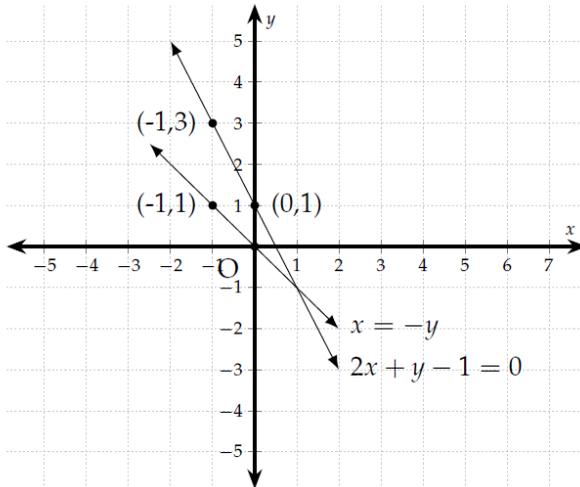
So the points  $(-1, 3)$  and  $(0, 1)$  lies on the graph of  $2x + y - 1 = 0.$

Take  $y = -x$

When  $x = -1$  then  $y = 1.$

When  $x = 0$  then  $y = 0.$

So the points  $(-1, 1)$  and  $(0, 0)$  lies on the graph of  $x = -y.$



From graph, we see  $(-1, 1)$  is the common point in both equations.

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### Exercise 8.3 (Solutions): Ver: 1.0

Mathematics 9th (Science)

Punjab Textbook Board

Updated: 28-5-2022



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