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

Important Notes:

To draw line or linear equation $ax + by + c = 0$, we only need any two points on the line determine by any method.

Q.1 Draw the conservation graph between liters and gallons using the relation 9 liters = 2 gallons (approximately) and taking liters along horizontal axis and gallons along vertical axis. From the graph read

(i) the numbers of gallons in 18 liters.

(ii) the numbers of liters in 8 gallons.

Solution:

Let liters be along horizontal axis and gallons is along vertical axis.

As 0 liter = 0 gallon and

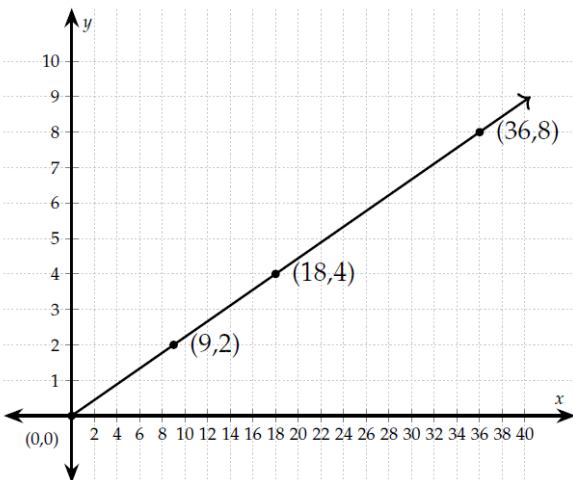
9 liters = 2 gallons.

So, the points (0,0) and (9,2) lies on the line.

From the graph, it is clear that

(i) 18 liters = 4 gallons.

(ii) 8 gallons = 36 liters.



Q.2 On 15.03.2008 the exchange rate of Pakistani currency and Saudi Riyal was as under:

S. Riyal = 16.70 Rupees.

If Pakistani currency y is an expression of S. Riyal x , expressed under the rule $y = 16.70x$, then draw the conversion graph between these two currencies by taking S.Riyal along x -axis.

Solution:

S. Riyal = x ,

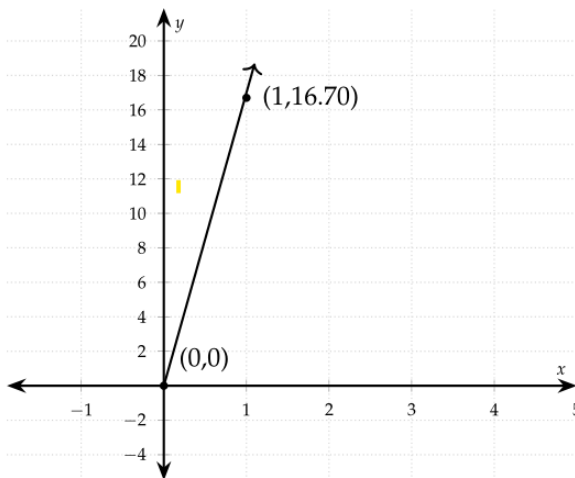
Pakistani Currency = y .

Given $y = 16.70x$

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

When $x = 1$, then $y = 16.70$.

So the points $(0,0)$ and $(1,16.70)$ lies on the line.



Q. 3(a) Sketch the graph of $x - 3y + 2 = 0$.

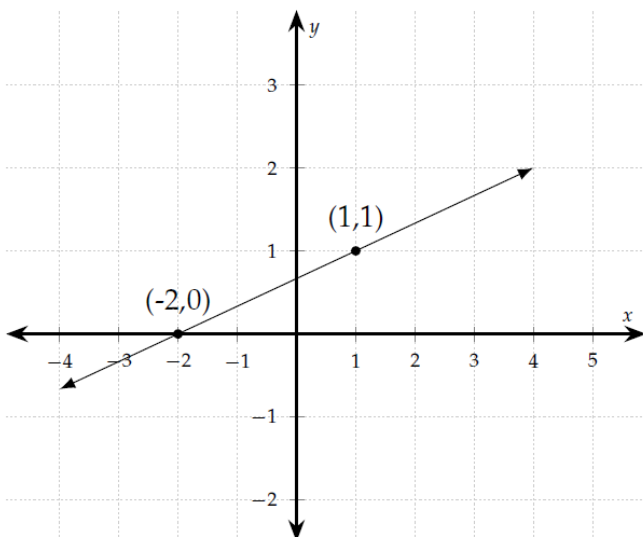
Solution: $x - 3y + 2 = 0$

$$\Rightarrow x = 3y - 2$$

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

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

So the points $(-2,0)$ and $(1,1)$ lies on the line.



Q. 3(b) Sketch the graph of $3x - 2y - 1 = 0$.

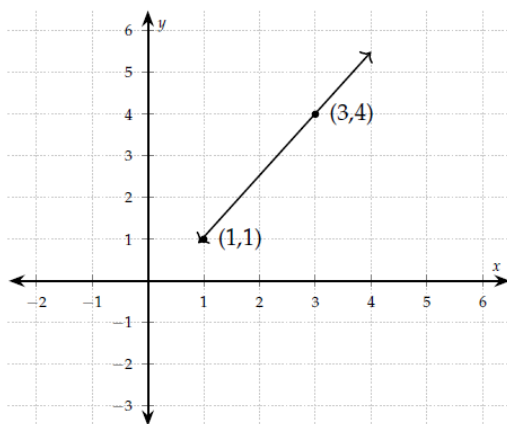
Solution:

$$3x - 2y - 1 = 0$$

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

When $x = 3$ then $y = 4$

So the points $(1, 1)$ and $(3, 4)$ lies on the graph.



Q.3 (c) Sketch the graph of $2y - x + 2 = 0$.

Solution:

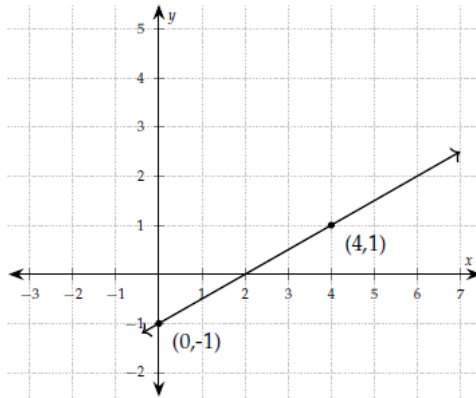
$$2y - x + 2 = 0$$

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

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

When $x = 4$ then $y = 1$

So the points $(0, -1)$ and $(4, 1)$ lies on the line.



Q.3 (d) Sketch the graph of $y - 2x = 0$.

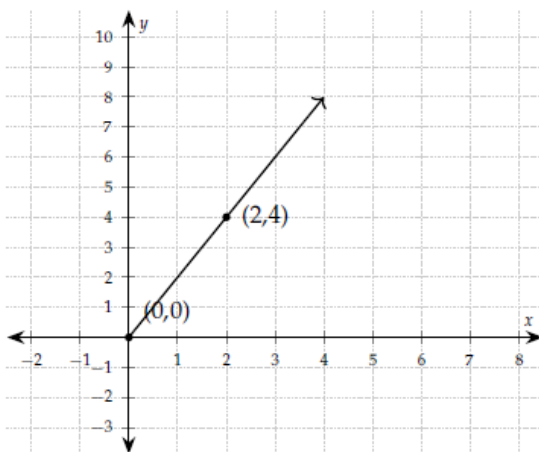
Solution:

$$y - 2x = 0 \Rightarrow y = 2x$$

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

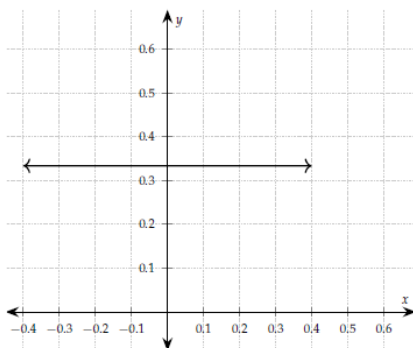
When $x = 2$ then $y = 4$

So the points $(0, 0)$ and $(2, 4)$ lies on the line.



Q.3 (e) Sketch the graph of $3y - 1 = 0$.

Solution: $3y - 1 = 0 \Rightarrow y = \frac{1}{3}$



Q.3 (f) Sketch the graph of $y + 3x = 0$.

Solution:

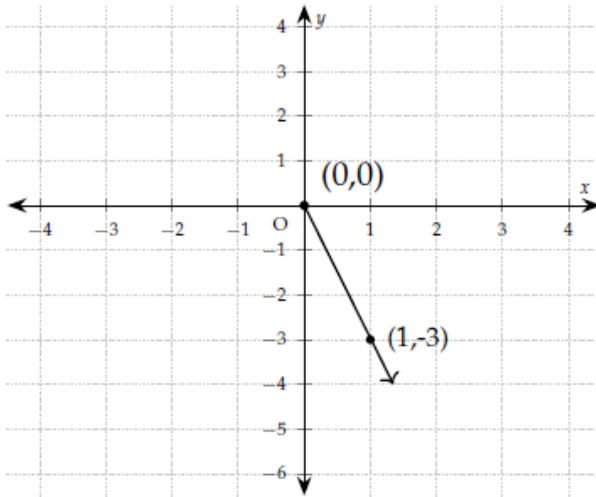
$$y + 3x = 0$$

$$\Rightarrow y = -3x$$

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

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

So the points $(0,0)$ and $(1,-3)$ lies on the graph.

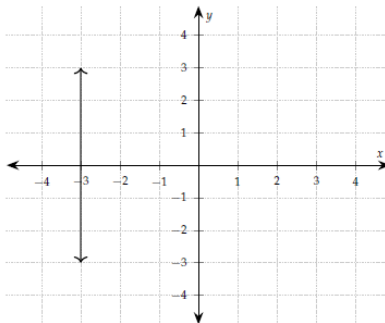


Q.3 (g) Sketch the graph of $2x+6=0$.

Solution:

$$2x+6=0$$

$$\Rightarrow x = -\frac{6}{2} \quad \Rightarrow x = -3$$



Q.4 Draw the graph for the following relation.

(i) one mile = 1.6 km

Solution: one mile = 1.6 km

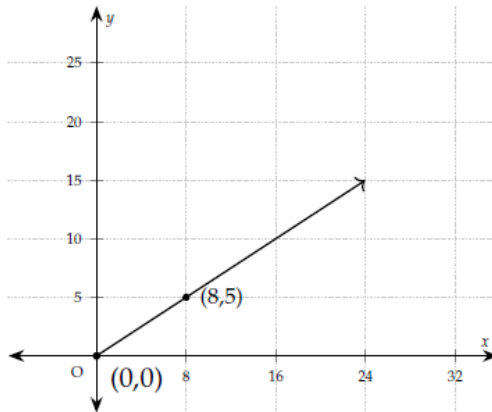
Let miles = x and kilometer = y , then

$$x = 1.6y \Rightarrow x = \frac{16}{10}y \Rightarrow x = \frac{8}{5}y$$

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

When $x = 8$ then $y = 5$

So the points $(0,0)$ and $(8,5)$ lies on the graph.



Q.4 (ii) Draw the graph for the following relation.

One acre = 0.4 Hectare

Solution:

One acre = 0.4 Hectare

Let Acre = x and Hectare = y , then

$$x = 0.4y$$

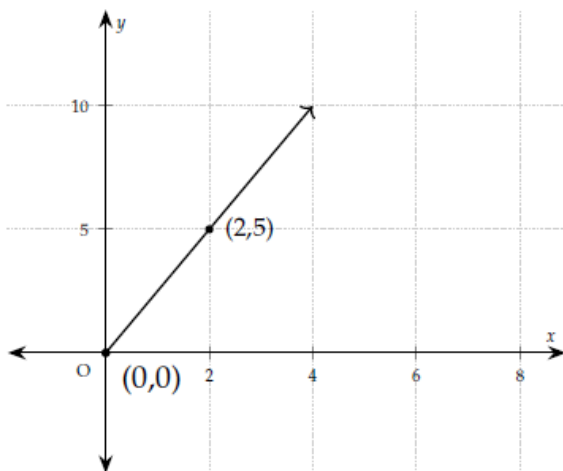
$$\Rightarrow x = \frac{4}{10}y$$

$$\Rightarrow x = \frac{2}{5}y$$

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

When $x = 2$ then $y = 5$

So the points $(0,0)$ and $(2,5)$ lies on the graph.



Q.4 (iii) Draw the graph for the following relation.

$$F = \frac{9}{5}C + 32$$

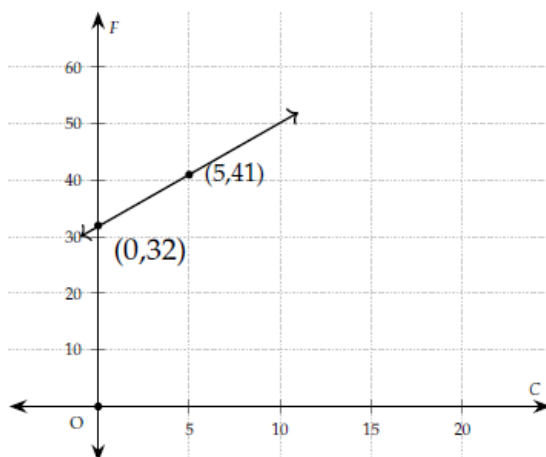
Solution: $F = \frac{9}{5}C + 32$

Consider $C = x\text{-axis}$ and $F = y\text{-axis}$

When $C = 0$ then $F = 32$

When $C = 5$ then $F = 41$

So the points $(0,32)$ and $(5,41)$ lies on the graph.



Q.4 (iv) Draw the graph for the following relation.

$$\text{One Rs. } 1 = \frac{1}{86} \$$$

Solution: $\text{Rs. } 1 = \frac{1}{86} \$$.

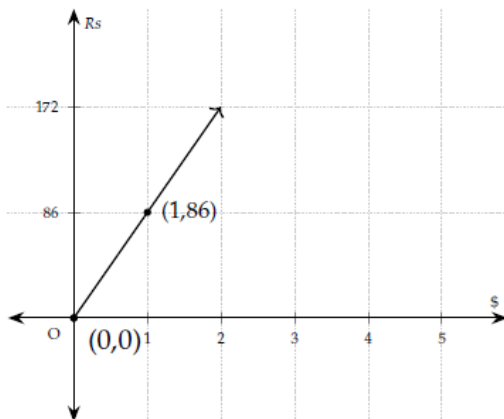
$$\Rightarrow \text{Rs } 86 = 1 \$$$

Let $\$ = x$ and $\text{Rs} = y$, then $x = 86y$

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

When $y = 1$ then $x = 86$

So the points $(0,0)$ and $(1,86)$ lies on the graph.



Exercise 8.2 (Solutions): Ver: 1.2

Mathematics 9th (Science)

Punjab Textbook Board

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