CBSE 9 Mathematics

Linear Equation in two variables

Q1) If $x = 3r + 2$ and $y = 2r - 1$ are solutions of equation $4x - 3y + 1 = 0$, Find the value of r.

Q2) If the work done by a force applied on a body is directly proportional to the distance travelled by the body, express this in form of an equation in two variables, taking the constant force as 4 units. Draw a graph to represent it and read the work done when the distance travelled by body is:

i) 1.5 units   ii) 3units.

Q3) Draw the graph for each of the equations $2x + y = 8$. Shade the area formed by this line and y-axis. Also, find this area.

Q4) Fred and George contributed ₹1200 towards the Prime Minister's Relief Funds to help Covid-19 patients. Write the linear equation to satisfy this data and draw its graph.

Q5) The cab fares in Bengaluru are as follows: For the first kilometre, the fare is ₹ 8 and for the subsequent distance it is ₹ 5 per km. Taking the distance covered as q km and total fare as ₹ r, write a linear equation for this information and draw its graph.

Q6) There are two scales of measuring the temperature, namely degree Fahrenheit (°F) and degree Celsius (°C). The relation between these two scales is given by, $F = \frac{9}{5}C + 32$.

i)If the temperature is 113°F, what is the temperature in Celsius?

ii)Find the value of the temperature which is same in both the scales.

Q7) Multiple choice question

i)How many linear equations can be satisfied by $x = 9 \; and \; y = 23$?

a) Only one   b) Only two   c) Infinitely many   d) None

ii)Any point on the y-axis is in the form of

a)(x, y) b)$(x, 0)$ c)$(0, y)$ d)(y, y)

iii)The point of the form $(m, -m), m \neq 0$ lies on

a) The x-axis   b) The y-axis   c) The line $y = x$ d) The line $x + y = 0$

Solutions

Sol1) Equation $4x - 3y + 1 = 0$

Given,

$x = 3r + 2$ and $y = 2r - 1$
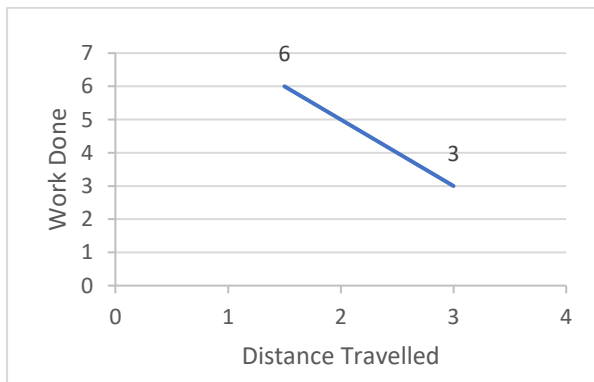
Substituting the values of $x \ and \ y$, we get

$4(3r + 2) - 3(2r - 1) + 1 = 0$

$6r + 12 = 0$

$r = -2$

Sol.2) Let Work done be Y and Distance travelled be X

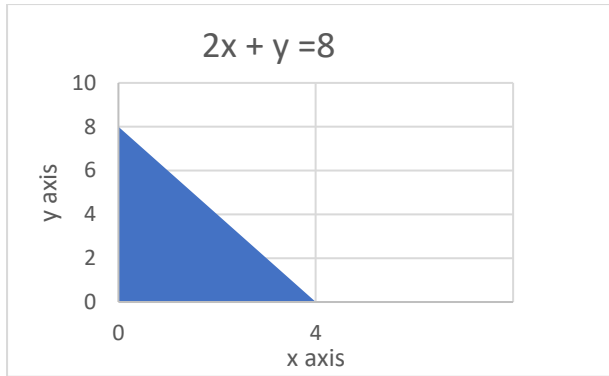Equation is Y = 4X

Sol.3)

i) 2x + y = 8 or y = 8 − 2x

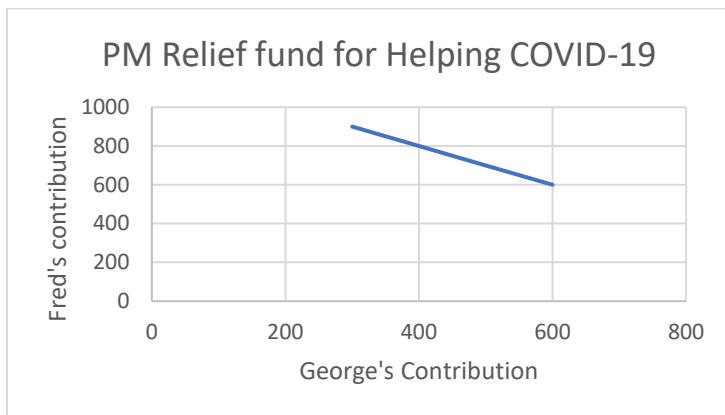| x	1	4
y	7	0

2x + y =8

Area for 2x + 1 =8 is area of triangle formed by line and y axis.

Area of triangle = $\frac{1}{2} 4 * 8 = 16 \ sq \ unit$

Sol.4) $x + y = 1200$

PM Relief fund for Helping COVID-19

Sol 5) Distance = q km and Fare = ₹ r /km

Equation: r = 8 + 5(q-1)

Sol.6.i) $\frac{9}{5}c + 32 = 113$

$$\frac{9}{5}c = 81 \ , c = 45°c$$

ii) $\frac{9}{5}x + 32 = x \implies \frac{9}{5}x - x = -32$

$$\frac{4}{5}x = -32 \implies x = -\frac{5 \times 32}{4} = -40$$

Sol.7) i) c   ii) c   iii) d

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