4-4.4-13

AI24BTECH11020 - RISHIKA KOTHA

Question: Slope of a line which cuts off intercepts of equal length on the axes is
a) -1
b) -0
c) 2
d) $\sqrt{3}$

Solution: Given that the line cuts off intercepts of equal length on the axes, let's assume the intercepts are both a,a. The equation of the line can be written as:

$$x/a + y/a = 1 \tag{0.1}$$
$$\implies x + y = a \tag{0.2}$$
$$y = -x + a \tag{0.3}$$
$$\therefore slope = -1 \tag{0.4}$$

Hence, The correct option is -1.

$\begin{pmatrix} x1 \\ y1 \end{pmatrix}, \begin{pmatrix} x2 \\ y2 \end{pmatrix}$	slope
$\begin{pmatrix} 1 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 1 \end{pmatrix}$	-1
$\begin{pmatrix} 4 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 4 \end{pmatrix}$	-1
$\begin{pmatrix} -2 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ -2 \end{pmatrix}$	-1

TABLE 0

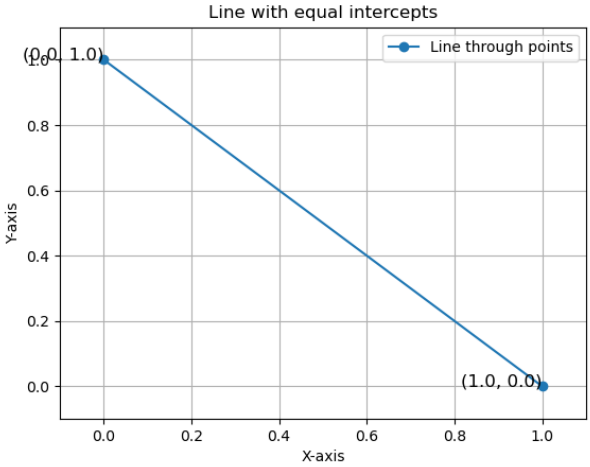
Line with equal intercepts
Line through points
(0.0, 1.0)
(1.0, 0.0)
Y-axis
X-axis
0.0
0.2
0.4
0.6
0.8
1.0

Fig. 0.1: x+y=1