

Linear Equations in Two Variables

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10th Maths - Chapter 3

This is Problem-1 from Exercise 3.1

1. Aftab tells his daughter, "Seven years ago, I was seven times as old as you were then. Also, three years from now, I shall be three times as old as you will be." Represent this situation both algebraically and graphically.

$$x - 7y = -42 \quad (1)$$

$$x - 3y = 6 \quad (2)$$

$$(3)$$

Solution:

This can also be written as:

$$\begin{pmatrix} 1 & -3 & 6 \\ 1 & -7 & -42 \end{pmatrix} \quad (4)$$

$$R_2 \rightarrow R_2 - R_1$$

we get,

$$\begin{pmatrix} 1 & -3 & 6 \\ 0 & -4 & -48 \end{pmatrix} \quad (5)$$

$$R_1 \rightarrow 3R_2 - 4R_1$$

we get,

$$\begin{pmatrix} -4 & 0 & -168 \\ 0 & -4 & -48 \end{pmatrix} \quad (6)$$

$R_1 \rightarrow R_1$ divided by -4
 $R_2 \rightarrow R_2$ divided by -4 we get,

$$\begin{pmatrix} 1 & 0 & 42 \\ 0 & 1 & 12 \end{pmatrix} \quad (7)$$

Hence $x=42$ and $y=12$