

# Quiz :-

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Given Data :-

Pakistani Egyptian and American  
cotton Ratio.

$$A : B : C$$

$$1 : 2 : 1$$

$$2 : 1 : 1$$

$$2 : 0 : 2$$

A, B, and C cost  $\Rightarrow$  40, 50 and 60 /Rs

Sol:-

The given data in linear equation.

$$x + 2y + z = 40$$

$$2x + y + z = 50$$

$$2x + \quad + 2z = 60$$

Now we use ~~Gauss~~ Gauss Jordan Elimination to find the value of  $x$ ,  $y$ , and  $z$ .

\* where  $x, y$  and  $z$  are the cost of a "kg" of each country.

$$x + 2y + z = 40$$

$$2x + y + z = 50$$

$$2x + \quad + 2z = 60$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 1 & 40 \\ 2 & 1 & 1 & 50 \\ 2 & 0 & 2 & 60 \end{array} \right]$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 1 & 40 \\ 0 & -3 & -1 & -30 \\ 0 & -4 & 0 & -20 \end{array} \right] \sim \begin{array}{l} R_2 - 2R_1 \\ R_3 - 2R_1 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 1 & 40 \\ 0 & 1 & 1/3 & 10 \\ 0 & -4 & 0 & -20 \end{array} \right] \sim -\frac{1}{3} R_2$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 1 & 40 \\ 0 & 1 & 1/3 & 10 \\ 0 & 0 & 4/3 & 20 \end{array} \right] \sim R_2 + 4R_2$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 1 & 40 \\ 0 & 1 & 1/3 & 10 \\ 0 & 0 & 1 & 15 \end{array} \right] \sim \frac{3}{4} R_2$$

$$\left[ \begin{array}{ccc|c} 1 & 2 & 0 & 25 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 15 \end{array} \right] \sim \begin{array}{l} R_1 - R_2 \\ R_2 - \frac{1}{3} R_2 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & 0 & 15 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 15 \end{array} \right] \sim R_1 - 2R_2$$

So we find the value of  $x, y$ , and  $z$ .

$x = 15$
$y = 5$
$z = 15$

Aws.