Chapter 8 Linear equations in one variable

Solution -1:- 8.1.

(i) $3(4) - 5 = 7$

LHS = RHS

(ii) $5 + 3(3) = 14$

$14 = 14$

LHS = RHS

(iii) $x = 2$

$3x - 2 = 8x - 12$

$3(2) - 2 = 8(2) - 12$

$6 - 2 = 16 - 12$

$4 = 4$

LHS = RHS.

(iv) $x = 4$

$\frac{3x}{2} = 6$

$\Rightarrow \frac{12}{2} = 6$

LHS = RHS

(v) $y - 3 = 2y - 5$

$\Rightarrow 2 - 3 = 2(2) - 5 \Rightarrow -1 = -1$

LHS = RHS

(vi) $\frac{1}{2}(8) + 7 = \frac{8}{2} + 7 = 4 + 7 = 11 = RHS.$

Solution -02:-

(i) $x + 3 = 12$

$x = 12 - 3$

$x = 9$

(ii) $x - 7 = 10$

$x = 10 + 7$

$x = 17$

(iii) $4x = 28$

$x = \frac{28}{4}$

$x = 7.$

(iv) $\frac{x}{2} + 7 = 11$

$x + 14 = 22.$

$x = 22 - 14$

$x = 8$

(v) $2x + 4 = 3x$

$3x - 2x = 4$

$x = 4.$

(VI) $\frac{x}{4} = 12$

$x = 12 * 4$

$x = 48$

(VII) $\frac{15}{x} = 3$

$x = \frac{15}{3}$

$= 5$

(VIII) $\frac{x}{18} = 20$

$x = 18 \times 20$

$x = 360.$

Exercise -8.2

Solution-01

1. $x - 3 = 5$

$x = 5 + 3$

$x = 8.$

2. $x + 9 = 13$

$x = 13 - 9$

$x = 4$

3. $x - \frac{3}{5} = \frac{7}{5}$

'In order to solve this equation, we have to get x by it self on the L.H.S To get x by it self on the LHS. we need to shift $-\frac{3}{5}$. this can can be done by adding $\frac{3}{5}$ to both sides of the given equation

$\Rightarrow x - \frac{3}{5} + \frac{3}{5} = \frac{7}{5} + \frac{3}{5}$

$\Rightarrow x = \frac{7+3}{5}$

$\Rightarrow x = \frac{10}{5}.$

Solution - 04

$3x = 0$

$\Rightarrow x = \frac{0}{3}$

$\Rightarrow x = 0$

solution - 05 :

$\Rightarrow \frac{x}{2} = 0$

$\Rightarrow x = 2 \times 0$

$\Rightarrow x = 0$

solution - 06 :

$\Rightarrow x - \frac{1}{3} = \frac{2}{3}$

$\Rightarrow x - \frac{1}{3} + \frac{1}{3} = \frac{2}{3} + \frac{1}{3}$

$\Rightarrow x = \frac{1+2}{3} = \frac{3}{3}$

$\Rightarrow x = 1.$

solution - 07

$\Rightarrow x + \frac{1}{2} - \frac{1}{2} = \frac{7}{2} - \frac{1}{2}$

$\Rightarrow x = \frac{7-1}{2} = \frac{6}{2}$

$\Rightarrow x = 3.$

Solution -8

$10 - y = 6$

$y = 10 - 6$

$\Rightarrow y = 4$

Solution -09 :-

$7 + 4y = -5$

$\Rightarrow 7 + 4y - 7 = -5 - 7$

$\Rightarrow 4y = -12$

$\Rightarrow \frac{4y}{4} = \frac{-12}{4}$

$\Rightarrow y = -3.$

Solution -10 :-

$\frac{4}{5} - x = \frac{3}{5}$

$\frac{4 - 5x}{5} = \frac{3}{5}$

$\Rightarrow 4 - 5x = 3$

$\Rightarrow 4 - 5x - 4 = 3 - 4$

$\Rightarrow -5x = -1$

$\Rightarrow x = 1/5.$

Solution - 11.

$$2y - \frac{1}{2} = -\frac{1}{3}$$

$$\Rightarrow 2y - \frac{1}{2} + \frac{1}{2} = -\frac{1}{3} + \frac{1}{2}$$

$$\Rightarrow 2y = \frac{3-2}{6}$$

$$\Rightarrow 2y = \frac{1}{6}$$

$$\Rightarrow y = \frac{1}{6 \times 2}$$

[By cross multiplication]

$$\Rightarrow y = \frac{1}{12}$$

Solution - 12:-

$$14 = \frac{7x}{10} - 8$$

$$\Rightarrow 14 + 8 = \frac{7x}{10} - 8 + 8$$

$$\Rightarrow 22 = \frac{7x}{10}$$

$$\Rightarrow 7x = 22 \times 10$$

[By cross cross multiplicat

$$\Rightarrow 7x = 220$$

$$\Rightarrow x = \frac{220}{7}.$$

Solution -13.

$3(x+2) = 15$

$\Rightarrow 3x + 6 = 15$

$\Rightarrow 3x = 15 - 6$

$\Rightarrow 3x = 9$

$\Rightarrow x = \frac{9}{3}$

$\Rightarrow x = 3$

Solution -14:-

$\Rightarrow \frac{x}{4} = \frac{7}{8}$

$\Rightarrow 8x = 28$

$\Rightarrow x = \frac{28}{8}$

$\Rightarrow x = \frac{7}{2}$

Solution-15:-

$\frac{1}{3} - 2x = 0$

$\frac{1}{3} - 2x + 2x = 2x$

$\frac{1}{3} = 2x$

$\Rightarrow x = 1/6.$

Solution-16:-

$3(x+6) = 24$

$\Rightarrow 3x + 18 = 24$

$\Rightarrow 3x = 24 - 18$

$\Rightarrow 3x = 6$

$\Rightarrow x = \frac{6}{3}$

$\Rightarrow x = 2$

Solution-17:-

$3(x+2) - 2(x-1) = 7$

$3x + 6 - 2x + 2 = 7$

$x + 8 = 7$

$x = 7 - 8$

$x = -1.$

Solution-18:-

$8(2x-5) - 6(3x-7) = 1$

$16x - 40 - 18x + 42 = 1$

$-2x + 2 = 1$

$2x = 2 - 1$

$\Rightarrow x = 1/2.$

Solution - 19:-

$6(1-4x)+7(2+5x) = 53$

$\Rightarrow 6-24x+14+35x = 53$

$\Rightarrow 11x+20 = 53$

$\Rightarrow 11x = 53-20$

$\Rightarrow 11x = 33$

$\Rightarrow x = \frac{33}{11}$

$\Rightarrow x = 3.$

Solution -20:-

$5(2-3x)-17(2x-5) = 16.$

$\Rightarrow 10-15x-34x+85 = 16$

$\Rightarrow 10-49x+85 = 16$

$\Rightarrow 95-16 = 49x$

$\Rightarrow 49x = 79.$

$\Rightarrow x = \frac{79}{49}$

Solution - 21:-

$$\frac{x-3}{5} - 2 = -1$$

$$\Rightarrow x - 3 - 10 = -5$$

$$\Rightarrow x - 13 = -5$$

$$\Rightarrow x = 13 - 5$$

$$\Rightarrow \boxed{x = 8}$$

Solution - 22:-

$$5(x-2) + 3(x+1) = 25$$

$$\Rightarrow 5x - 10 + 3x + 3 = 25$$

$$\Rightarrow 8x - 7 = 25$$

$$\Rightarrow 8x = 32$$

$$\Rightarrow x = \frac{32}{8}$$

$$\Rightarrow \boxed{x = 4.}$$

Exercise- 8.3.

Solution -01:-

$\Rightarrow 6x+5 = 2x+17$

$\Rightarrow 6x-2x+5 = 2x+17-2x$ [Subtract '2x' on both sides]

$\Rightarrow 4x+5 = 17$

$\Rightarrow 4x+5-5 = 17-5$ [Subtract '5' on both sides]

$\Rightarrow 4x = 12$

$\Rightarrow \frac{4x}{4} = \frac{12}{4}$ [Divide by '4' on both sides]

$\Rightarrow x = 3.$

Varification:-

$\Rightarrow 6(3)+5 = 2(3)+17$ [Substitute $x=3$]

$\Rightarrow 23 = 23.$

$\therefore$ LHS = RHS

Solution-02

$2(5x-3)-3(2x-1) = 9$

$10x-6-6x+3 = 9$

$4x-3 = 9$

$4x = 9+3$

$4x = 12$

$\frac{4x}{4} = \frac{12}{4}$ [Divide by '4' on both sides]

$x = 3.$

Varification:

$2(5(3)-3)-3(2(3)-1) = 9$

$2(12)-3(5) = 9$

$9 = 9$

$\therefore$ LHS = RHS.

3. $\frac{x}{2} = \frac{x}{3} + 1$

$\Rightarrow \frac{x}{2} = \frac{x}{3} + 1$

$\Rightarrow \frac{x}{2} = \frac{x+3}{3}$

By cross multiplication we get.

$\Rightarrow 3x = 2(x+3)$

$\Rightarrow 3x = 2x + 6$

Subtract '2x' on both sides

$\Rightarrow x = 6$.

Varification:-

$\Rightarrow \frac{6}{2} = \frac{6}{3} + 1 \Rightarrow 3 = 3$.

4. $\frac{x}{2} + \frac{3}{2} = \frac{2x}{5} - 1$

$\frac{x+3}{2} = \frac{2x-5}{5}$

$\Rightarrow 5(x+3) = 2(2x-5)$

$\Rightarrow 5x + 15 = 4x - 2\times5$

$\Rightarrow 5x - 4x + 15 = 4x - 2\times5 - 4x$ [Subtract 4x on both sides]

$\Rightarrow x + 15 = -2\times5$

$\Rightarrow x + 15 = -10$

$\Rightarrow x = -15 - 10$

$\Rightarrow x = -25$.

Varification:- $-\frac{25}{2} + \frac{3}{2} = \frac{44}{4} - x - \frac{50}{5} - 1$

$-11 = -11$

5. $\frac{3}{4}(x-1) = (x-3)$

$\Rightarrow 3x - 3(1) = 4(x-3)$

$\Rightarrow 3x - 3 = 4x - 12$

Adding '12' on both sides

$3x - 3 + 12 = 4x - 12 + 12$

$\Rightarrow 3x + 9 = 4x$

Adding Subtracting $3x$ on both sides

$\Rightarrow 4x - 3x = 3x + 9 - 3x$

$\Rightarrow x = 9.$

Varification

$\frac{3}{4}(9-1) = (9-3)$

$\frac{3}{4} \times 8 = 6$

$6 = 6$

6. $3(x-3) = 5(2x+1)$

$3x - 9 = 5(2x) + 5$

$\Rightarrow 3x - 9 = 10x + 5$

$\Rightarrow 10x - 3x + 5 = 3x - 9 - 3x$ [subtracting $3x$ on both sides]

$\Rightarrow 7x = -9 - 5$

$\Rightarrow 7x = -14$

$\Rightarrow \frac{7x}{7} = \frac{-14}{7}$

$\Rightarrow x = -2.$

Varification:

$3(-2-3) = 5(2(-2)+1)$

$-15 = -15.$

7. $3x-2(2x-5) = 2(x+3) - 8$.

$\Rightarrow 3x-2(2x-5) = 2(x+3) - 8$

$\Rightarrow 3x-4x+10 = 2x+6-8$

$\Rightarrow -x+10 = 2x-2$

$\Rightarrow -x+x+10 = 2x+x-2$

$\Rightarrow 10+2 = 3x-2+2$

$\Rightarrow 3x = 12$

$\Rightarrow \frac{3x}{3} = \frac{12}{3}$

$\Rightarrow x = 4.$

Varification :-

$3(4)-2(2(4)-5) = 2(4+3)-8$

$\Rightarrow 12-2[3] = 2[7]-8$

$\Rightarrow 6 = 6.$

8. $x-\frac{x}{4}-\frac{1}{2} = 3+\frac{x}{4}$

$\Rightarrow \frac{4x-x-2}{4} = \frac{12+x}{4}$

$\Rightarrow 4x-x-2 = 12+x$

$\Rightarrow 3x-2 = 12+x$

$\Rightarrow 3x-x = 12+2$

$\Rightarrow 2x = 14$

$\Rightarrow \frac{x}{2} \times 2 = \frac{14}{2}$

$\Rightarrow x = 7$

Varification :-

$7-\frac{7}{4}-\frac{1}{2} = \frac{28-7-2}{4} = \frac{19}{4} = 3+\frac{7}{4} = \frac{19}{4}.$

9. $\frac{6x-2}{9} + \frac{3x+5}{18} = \frac{1}{3}$.

$\Rightarrow \frac{(6x-2)\times 2}{9\times 2} + \frac{3x+5}{18} = \frac{1}{3}$

$\Rightarrow \frac{12x-4+3x+5}{18} = \frac{1}{3}$

$\Rightarrow 15x+1 = \frac{18}{3}$ [By crossmultiplication]

$\Rightarrow 15x = 6-1$

$\Rightarrow 15x = 5$

$\Rightarrow \frac{15x}{15} = \frac{5}{15}$

$\Rightarrow x = \frac{1}{3}$.

Varification :-

$\frac{6\times\frac{1}{3}-2}{9} + \frac{3\times\frac{1}{3}+5}{18} = 0 + \frac{6}{18} = \frac{1}{3}$ = RHS.

10. $m - \frac{m-1}{2} = 1 - \frac{m-2}{3}$

$\Rightarrow \frac{m\times 2}{2} - \frac{m-1}{2} = \frac{1\times 3}{3} - \frac{m-2}{3}$

$\Rightarrow \frac{2m-m+1}{2} = \frac{3-m+2}{3}$

$\Rightarrow 3(m+1) = 2(5-m)$

$\Rightarrow 3m+2m+3 = 10-2m+2m$

$\Rightarrow 5m = 10-3 = 7$

$\Rightarrow m = 7/5$

Varification:

$\frac{7}{5} - \frac{\frac{7}{5}-1}{2} = \frac{7}{5} - \frac{2}{10} = \frac{14-2}{10} = \frac{6}{5} = \frac{3-\frac{7}{5}-2}{\frac{15}{3}} = \frac{6}{5}$.

11. $\frac{5x-1}{3} - \frac{2x-2}{3} = 1$

$\Rightarrow \frac{5x-1-(2x-2)}{3} = 1$

$\Rightarrow 5x-1-2x+2 = 3$

$\Rightarrow 3x+1 = 3$

$\Rightarrow 3x+1-1 = 3-1$

$\Rightarrow 3x = 2$

$\Rightarrow \frac{3x}{3} = \frac{2}{3}$

$\Rightarrow x = \frac{2}{3}$

Verification :-

$\frac{5\times\frac{2}{3}-1}{3} - \frac{2\times\frac{2}{3}-2}{3} = \frac{\frac{7}{3}+\frac{2}{3}}{3} = \frac{3}{3} = 1$

= RHS.

12. $0.6x + \frac{4}{5} = 0.28x + 1.16.$

$\Rightarrow \frac{0.6x(5)}{5} + \frac{4}{5} = 0.28x + 1.16$

$\Rightarrow 3x+4 = 1.4x + 5.80$

$\Rightarrow 3x - 1.4x = 5.80 - 4$

$\Rightarrow 1.6x = 1.8 \Rightarrow x = \frac{1.8}{1.6}$

$\Rightarrow x = \frac{9}{8}.$

Varification:-

$$LHS = 0.6 \times \frac{9}{8} + \frac{4}{5} = \frac{5.4}{8} + \frac{4}{5} = \frac{5.4(5)}{40} + \frac{32}{40}$$

$$= \frac{27+32}{40} = \frac{59}{40}.$$

$$= 1.475$$

$$RHS = 0.28 \times \frac{9}{8} + 1.16 = \frac{28}{100} * \frac{9}{8} + 1.16$$

$$= 1.475$$

$\therefore$ LHS = RHS.

Solution-13:-

$$\Rightarrow 0.5x + \frac{x}{3} = 0.25x + 7$$

$$\Rightarrow \frac{1.5x + x}{3} = 0.25x + 7$$

$$\Rightarrow 2.5x - 0.75x = 21$$

$$\Rightarrow 1.75x = 21$$

$$\Rightarrow x = 12.$$

Varification:-

$$\Rightarrow 0.5 \times 12 + \frac{12}{3} = 6 + 4 = 10$$

$$LHS = 10$$

$$RHS = 0.25 \times 12 + 7 = 3 + 7 = 10$$

$$LHS = RHS.$$

Exercise - 8.4.

Solution-01:-

Let 'x' be the given number

3 times of the number = $3x$.

if 5 subtracted from the given three times a number $\rightarrow 16$

$\Rightarrow 3x - 5 = 16$

$\Rightarrow 3x - 5 = 16$

$\Rightarrow 3x - 5 + 5 = 16 + 5$

$\Rightarrow 3x = 21$

$\Rightarrow \frac{x}{3} \times 3 = \frac{21}{3}$

$\Rightarrow x = 7.$

required number is '7'.

Solution-02:-

Let the number be 'x'

when multiplied by 7 it becomes $\rightarrow 7x$

$\Rightarrow 7x = x + 78$

$\Rightarrow 7x - x = x + 78 - x$

$\Rightarrow 6x = 78$

$\Rightarrow \frac{6x}{6} = \frac{78}{6}$

$\Rightarrow x = 13.$

required number is '13'.

Solution-03:-

Let three consectutive numbers be x, $x+1$ and $x+2$.

Given that

$\Rightarrow x+x+1 = 15+2+x$

$\Rightarrow 2x+1 = 17+x$

$\Rightarrow 2x+1-x = 17+x-x$

$\Rightarrow x+1 = 17$

$\Rightarrow x+1-1 = 17-1$

$\Rightarrow x = 16,\ x+1 = 17,\ x+2 = 18.$

required numbers 16, 17, 18

Solution-04:-

Given that,

The difference between two numbers is 7.

$$x-y = 7. \longrightarrow ①$$

Let the small number be 'y'

Let the Larger number be 'x'

$$6y+x = 77 \longrightarrow ②$$

$$x-y = 7$$

$$x = y+7 \longrightarrow ③$$

Substituting ③ in ② we get

$\Rightarrow 6y+y+7 = 77$

$\Rightarrow 7y+7 = 77$

$\Rightarrow 7y+7-7 = 77-7$

$\Rightarrow 7y = 70$

$\Rightarrow \frac{7y}{7} = \frac{70}{7}$

$\Rightarrow y = 10.$

$x = 10+7 = 17.$

Required numbers 10, 17.

Solution-05:-

Given that,

Let the required number be 'x', then

$$\Rightarrow \frac{x}{3} + 5 = 2x$$

$$\Rightarrow \frac{x + 5(3)}{3} = 2x$$

$$\Rightarrow x + 15 = 2x(3)$$

$$\Rightarrow 6x - x = x + 15 - x$$

$$\Rightarrow 5x = 15$$

$$\Rightarrow \frac{5x}{5} = \frac{15}{5}$$

$$\Rightarrow x = 3.$$

Solution-06:-

Let the required number be 'x'.

Given that,

$$\Rightarrow 3x + 5 = 50$$

$$\Rightarrow 3x + 5 = 50$$

$$\Rightarrow 3x + 5 - 5 = 50 - 5$$

$$\Rightarrow 3x = 45$$

$$\Rightarrow \frac{3x}{3} = \frac{45}{3}$$

$$\Rightarrow x = 15$$

Required number be $x = 15$.

Solution-07:-

Let Shikha's age x and Ravish age $x+3$

Then. Given that

$\Rightarrow x + x+3 = 37$

$\Rightarrow 2x+3 = 37$

$\Rightarrow 2x+3-3 = 37-3$

$\Rightarrow 2x = 34.$

$\Rightarrow \frac{2x}{2} = \frac{34}{2}$

$\Rightarrow x = 17.$

$\therefore$ Shikha : 17 years

Ravis $= x+3$ years

$= 17+3$ years

$= 20$ years.

Solution-08:-

Let Mrs jain present age $x+27$ and

Nilu present age x

After 8 years

Mrs jain Age $= x+27+8 = x+35$

Nilu age $= x+8$

Given that

$\Rightarrow x+35 = 2(x+8)$

$\Rightarrow x+35 = 2x+16$

$\Rightarrow x+35-x = 2x+16-x$

$\Rightarrow x = 19.$

$\therefore$ Nilu's 19 years

Mrs. Jain age $= x+27 = 19+27 = 46$ years

Solution-09:-

Let Man age be $4x$ and
his son age be x

After 16 years

Man age $\rightarrow 4x+16$

his son age $\longrightarrow x+16$

Given that

$$(x+16)2 = 4x+16$$

$$\Rightarrow 4x+16 = 2x+32$$

$$\Rightarrow 4x+16-2x = 2x+32-2x$$

$$\Rightarrow 2x+16 = 32$$

$$\Rightarrow 2x+16-16 = 32-16$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow \frac{2x}{2} = \frac{16}{2}$$

$$\Rightarrow x = 8$$

$\therefore$ Son age $= 8$.

father age $= 4x = 4(8) = 32$ years

solution-10:-

Let ther Girls Age be x and
younger sistey age $x-4$.
her bbthey age be $x-4-4 = x-8$.

Given that

$$\Rightarrow x-4+x-8 = 16$$

$$\Rightarrow 2x-12 = 16$$

$$\Rightarrow 2x-12+12 = 16+12$$

$$\Rightarrow 2x = 28.$$

$\Rightarrow 2x = 28$

$\Rightarrow \frac{2x}{2} = \frac{28}{2}$

$\Rightarrow x = 14.$

Girl - $x = 14$ years

younger sister $\Rightarrow x - 4 = 14 - 4 = 10$ years

Brother $\rightarrow x - 8 = 14 - 8 = 6$ years

solution -11 :-

Given that.

Let Anita found 'x' shells then

sandy found '$x-5$' shells and

Shella found '$2x$' shells

G|T

$\Rightarrow 2x + x - 5 = 16$

$\Rightarrow 3x - 5 + 5 = 16 + 5$

$\Rightarrow 3x = 16 + 5$

$\Rightarrow 3x = 21$

$\Rightarrow \frac{3x}{3} = \frac{21}{3}$

$\Rightarrow x = 7.$

Anita - 7

sandy $\Rightarrow x - 5 = 7 - 5 = 2$

Shella $\rightarrow 2x = 2(7)$

$= 14.$

Solution-12

Let pandy has x marbles

Andy has $2x$ marbles

Sandy has $\frac{2x+x}{2}$ marbles

Given that

$\Rightarrow$ No. of marbles sandy has = 110 + 115
[Andy has] [more than Andy he has]

$\Rightarrow \frac{2x+x}{2} = 225$

$\Rightarrow 3x = 450$

$\Rightarrow \frac{3x}{3} = \frac{450}{3}$

$\Rightarrow x = 150$

Andy has $\longrightarrow$ $2x$ marbles $= 2(150)$

$= 300$ marbles

Sandy has $\rightarrow \frac{3x}{2}$ marbles $= \frac{3(150)}{2}$

$= 225$ marbles

Solution-13:-

Let the number of 25paise coins $4x$ and
50 paise coins x

G|T

$\Rightarrow x(.50) + 4x(0.25) = 30$ RS

[$\because$ 1RS = 100paise
50 Paise = 0.5RS
25 Paise = 0.25RS]

$\Rightarrow 0.50x + x = 30$

$\Rightarrow 1.5x = 30$

$\Rightarrow \frac{1.5x}{1.5} = \frac{30}{1.5}$

$\Rightarrow x = 20.$

50 paise coins $= x = 20$

25 paise coins $= 4x = 4(20) = 80$ coins.

Solution-14:-

Let Length be $2x$ and bread th $\rightarrow x$

Then. G|T

perimeter = 228metus

We know that perimeter $= 2(l+b) = 228$

$\Rightarrow 2(2x + x) = 228$

$\Rightarrow 6x = 228$

$\Rightarrow \frac{6x}{6} = \frac{228}{6}$

$\Rightarrow x = 38$

bread th $= 38$

Length $= 2x = 2(38)$
$= 76.$

Solution - 15 :-

Let the number of 25 paise coins be 'x'

G|T Value of a Purse = Rs 17.50p

$\Rightarrow 0.25(x) = 17.50$

$\Rightarrow \frac{25x}{100} = \frac{1750}{100}$

$\Rightarrow 25x = 1750$

$\Rightarrow \frac{25x}{25} = \frac{1750}{25}$

$\Rightarrow x = 70.$

$\therefore$ Number of coins in the Purse = 70.

Solution - 16 :-

Let the Number of students be 'x'

Then.

Given that consumption of rice everyday = 50kg

we know that

1kg = 1000gms

50kg = 50,000 gms.

Then G|T

$400 \times x = 50,000$

$\Rightarrow 4x = 500$

$\Rightarrow \frac{4x}{4} = \frac{500}{4}$

$\Rightarrow x = 125.$

$\therefore$ No of students = 125.