NCERT SOLUTIONS FOR CLASS 8 MATHS LINEAR EQUATION IN ONE VARIABLE EX-2.6

Solve the following equations.

Q1. $\frac{8x-3}{3x}=2$

Ans: $\frac{8x-3}{3x}=2$

$\Rightarrow 8x-3=2\times 3x$

$\Rightarrow 8x-3=6x$

$\Rightarrow 8x-6x=3$

$\Rightarrow 2x=3$

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

Q2. $\frac{9x}{7-6x}=15$

Ans: $\frac{9x}{7-6x}=15$

$\Rightarrow 9x=15(7-6x)$

$\Rightarrow 9x=105-90x$

$\Rightarrow 9x+90x=105$

$\Rightarrow 99x=105$

$\Rightarrow x=\frac{105}{99}$

$\Rightarrow x=\frac{35}{33}$

Q3. $\frac{x}{x+15}=\frac{4}{9}$

Ans: $\frac{z}{z+15}=\frac{4}{9}$

$\Rightarrow z\times 9=4(z+15)$

$\Rightarrow 9z=4z+60$

$\Rightarrow 9z-4z=60$

$\Rightarrow 5z=60$

$\Rightarrow z=\frac{60}{5}$

$\Rightarrow z=12$

Q4. $\frac{3y+4}{2-6y}=\frac{-2}{5}$

Ans: $\frac{3y+4}{2-6y}=\frac{-2}{5}$

$\Rightarrow 5(3y+4)=-2(2-6y)$

$\Rightarrow 15y+20=-4+12y$

$\Rightarrow 15y-12y=-4-20$

$\Rightarrow 3y=-24$

$\Rightarrow y=\frac{-24}{3}$

$\Rightarrow y=-8$

Q5. $\frac{7y+4}{y+2}=\frac{-4}{3}$

Ans: $\frac{7y+4}{y+2}=\frac{-4}{3}$

$\Rightarrow 3(7y+4)=-4(y+2)$

$\Rightarrow 21y+12=-4y-8$

$\Rightarrow 21y+4y=-8-12$

$\Rightarrow 25y=-20$

$$\Rightarrow y = \frac{-20}{25}$$

$$\Rightarrow y = \frac{-4}{5}$$

Q6. The ages of Hari and Harry are in the ratio 5 : 7. Four years from now the ratio of their ages will be 3 : 4. Find their present ages.

Ans: Let the Ages of Hari and Harry be $5x$ years and $7x$ years.

According to question, $\frac{5x+4}{7x+4} = \frac{3}{4}$

$$\Rightarrow 4(5x+4) = 3(7x+4)$$

$$\Rightarrow 20x+16 = 21x+12$$

$$\Rightarrow 20x-21x = 12-16$$

$$\Rightarrow -x = -4$$

$$\Rightarrow x = 4$$

Hence, the age of Hari = $5x = 4\times5$

= 20 years

And the age of Harry = $7x = 7 \times 4$

= 28 years.

Q7. The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

Ans: Let the numerator of a rational number be x, then the denominator is $x+8$.

Therefore, Rational number = $\frac{x}{x+8}$

According to the question,

$$\frac{x+17}{x+8-1} = \frac{3}{2}$$

$$\Rightarrow \frac{x+17}{x+7} = \frac{3}{2}$$

$$\Rightarrow 2(x+17) = 3(x+7)$$

$$\Rightarrow 2x+34 = 3x+21$$

$$\Rightarrow 2x-3x = 21-34$$

$$\Rightarrow -x = -13$$

$$\Rightarrow x = 13$$

Hence, the required rational number

$$= \frac{x}{x+8} = \frac{13}{13+8} = \frac{13}{21}.$$

********** END **********