

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 = $5x = 4 \times 5$

= 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_1 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

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

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