

**CBSE Class –VIII Mathematics**

**NCERT Solutions**

**CHAPTER - 2**

**Linear Equations in One Variable (Ex. 2.6)**

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**Solve the following equations.**

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

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

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

$$\Rightarrow 8x-3 = 6x$$

$$\Rightarrow 8x-6x = 3$$

$$\Rightarrow 2x = 3$$

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

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

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

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

$$\Rightarrow 9x = 105 - 90x$$

$$\Rightarrow 9x + 90x = 105$$

$$\Rightarrow 99x = 105$$

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

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

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3.  $\frac{z}{z+15} = \frac{4}{9}$

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

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

$$\Rightarrow 9z = 4z + 60$$

$$\Rightarrow 9z - 4z = 60$$

$$\Rightarrow 5z = 60$$

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

$$\Rightarrow z = 12$$

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

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

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

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

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

$$\Rightarrow 3y = -24$$

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

$$\Rightarrow y = -8$$

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

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

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

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

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

$$\Rightarrow 25y = -20$$

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

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

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**6. 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.

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7. 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

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