

RD Sharma
Solutions

Class 7

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Chapter-8

①

Linear equations in one variable

Exercise 8.1

8.1 Verify by substitution that

(i) $x=4$ is the root of $3x-5=7$

(ii) $x=3$ is the root of $5+3x=14$

(iii) $x=2$ is the root of $3x-2=8x-12$

(iv) $x=4$ is the root of $\frac{3x}{2}=6$

(v) $y=2$ is the root of $y-3=2y-5$

(vi) $x=8$ is the root of $\frac{1}{2}x+7=11$

Solution (i) By putting $x=4$ in LHS

$$\begin{aligned} & 3(4)-5 \\ & = 12-5=7=RHS \end{aligned}$$

Hence $x=4$ is the root of $3x-5=7$.

(ii) Putting $x=3$ in LHS

$$5+3(3)=5+9=14=RHS$$

Thus $x=3$ is a root of the equation.

(iii) Putting $x=2$ in LHS

$$3(2)-2=6-2=4$$

$$\text{Putting } x=2 \text{ in RHS} = 8(2)-12 = 16-12=4$$

$$\therefore LHS = RHS$$

(iv) Putting $x=4$ in LHS = $\frac{3(4)}{2} = \frac{12}{2} = 6 = \text{RHS}$

Thus $x=4$ is a root of the equation.

(v) Putting $y=2$ in LHS

$$y-3 = 2-3 = -1$$

RHS: $2y-5 = 2(2)-5$
 $= 4-5 = -1$

$\therefore \text{LHS} = \text{RHS}$

(vi) Putting $x=8$ in LHS = $\frac{1}{2}(8)+7$

$$= 4+7 = 11 = \text{RHS}$$

$\therefore$ Thus $x=8$ is a root of the equation.

Q.2 Solve each of the following equations by trial and error method.

(i) $x+3=12$

(ii) $x-7=10$

(iii) $4x=28$

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

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

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

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

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

Solution:

Solution: (1) $x+3=12$

equation	x	LHS	RHS	Is LHS=RHS
$x+3=12$	8	$8+3=11$	12	No
	9	$9+3=12$	12	Yes.
$x-7=10$	15	$15-7=8$	10	No
	16	$16-7=9$	10	No
	17	$17-7=10$	10	Yes.
$4x=28$	5	$4 \times 5 = 20$	28	No
		$4 \times 6 = 24$	28	No
		$4 \times 7 = 28$	28	Yes.
$\frac{x}{2}+7=11$	4	$\frac{4}{2}+7=2+7=9$	11	No
	6	$\frac{6}{2}+7=3+7=10$	11	No
	8	$\frac{8}{2}+7=4+7=11$	11	Yes.
$2x+4=3x$	1	$2(1)+4=6$	$3(1)=3$	No
	2	$2(2)+4=8$	$3(2)=6$	No
	4	$2(4)+4=12$	$3(4)=12$	Yes.
$\frac{x}{4}=12$	44	$\frac{44}{4}=11$	12	No
	46	$\frac{46}{4}=\frac{23}{2}$	12	No
	48	$\frac{48}{4}=12$	12	Yes.

equation	x	LHS	RHS	IS LHS = RHS
$\frac{15}{x} = 3$	3	$\frac{15}{3} = 5$	3	No
	5	$\frac{15}{5} = 3$	3	Yes.
$\frac{x}{18} = 20$	360	$\frac{360}{18} = 20$	20	Yes.

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