

RD Sharma
Solutions

Class 7

aglasem.com



Exercise 8.2

Solve each of the following equations and check your answers

1. $x - 3 = 5$

$$\Rightarrow x = 3 + 5 \quad (\text{Transferring } 3 \text{ to RHS})$$

$$\Rightarrow x = 8$$

Check: Put $x = 8$ in LHS

$$8 - 3 = 5$$

Thus LHS = RHS

2. $x + 9 = 13$

$$\Rightarrow x = 13 - 9 \quad (\text{Transferring } 9 \text{ to RHS})$$

$$x = 4$$

• Check: put $x = 4$ in LHS

$$4 + 9 = 13$$

$\therefore$ LHS = RHS

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

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

$$= \frac{10}{5} = 2$$

$$\Rightarrow x = 2$$

Check: Putting $x = 2$ in

LHS

$$2 - \frac{3}{5} = \frac{10-3}{5} = \frac{7}{5}$$

= RHS

$$4 \quad 3x = 0$$

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

$$x = 0$$

Check! putting 0 in LHS

$$3 \times 0 = 0 = \text{RHS}$$

$$5. \quad \frac{x}{2} = 0$$

$$\Rightarrow x = 0 \times 2 = 0$$

Check! Putting $x=0$ in LHS

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

Check! Putting $x=0$ in LHS

$$\frac{0}{2} = 0 = \text{RHS}$$

$$6 \quad x - \frac{1}{3} = \frac{2}{3}$$

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

$$x = 1$$

Check! Putting $x=1$ in LHS

$$1 - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3} = \text{RHS}$$

$$7. \quad x + \frac{1}{2} = \frac{7}{2}$$

$$\Rightarrow x = \frac{7}{2} - \frac{1}{2} = \frac{7-1}{2} = \frac{6}{2} = 3$$

check: Putting $x=3$ in LHS

$$3 + \frac{1}{2} = \frac{6+1}{2} = \frac{7}{2} = \text{RHS.}$$

⑧ $10 - y = 6$

Transposing y to RHS, 6 to LHS, we get

$$10 - 6 = y$$

$$\Rightarrow y = 4$$

check: Putting $y=4$ in LHS

$$10 - 4 = 6 = \text{RHS}$$

⑨ $7 + 4y = -5$

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

$$4y = -12$$

$$y = \frac{-12}{4} = -3$$

check: putting $y=-3$ in LHS

$$7 + 4(-3) = 7 - 12 = -5 = \text{RHS}$$

⑩ $\frac{4}{5} - x = \frac{3}{5}$

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

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

$$\therefore x = \frac{1}{5}$$

Check! putting $x = \frac{2}{5}$ in LHS

$$\frac{4}{5} - \frac{1}{5} = \frac{4-1}{5} = \frac{3}{5} = \text{RHS}$$

11 $2y - \frac{1}{2} = -\frac{1}{3}$

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

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

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

$$\Rightarrow y = \frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

check! putting $y = \frac{1}{12}$ in LHS

$$2\left(\frac{1}{12}\right) - \frac{1}{2} = \frac{1}{6} - \frac{1}{2} = \frac{1-3}{6} = -\frac{2}{6} = -\frac{1}{3}$$

12 $14 = \frac{7x}{10} - 8$

$$\Rightarrow 14 = \frac{7x-80}{10}$$

$\Rightarrow$

By cross multiplication

$$14 \times 10 = 7x - 80$$

$$\Rightarrow 140 = 7x - 80$$

$$\Rightarrow 140 + 80 = 7x$$

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

check!

putting $x = \frac{220}{7}$ in RHS

$$\Rightarrow \frac{x}{10} \left(\frac{220}{x} \right) - 8$$

$$= 22 - 8 = 14 = \text{LHS}$$

Q.13 $3(x+2) = 15$

$$\Rightarrow 3x + 6 = 15$$

$$\Rightarrow 3x = 15 - 6$$

$$\Rightarrow 3x = 9$$

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

Check! putting $x = 3$ in LHS

$$3(3+2) = 3 \times 5 = 15$$

Q.14 $\frac{x}{4} = \frac{7}{8}$

(By cross multiplication)

$$\Rightarrow 8x = 7 \times 4$$

$$\Rightarrow 8x = 28$$

$$\Rightarrow x = \frac{28}{8} = \frac{7}{2}$$

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

Check:

putting $x = \frac{7}{2}$ in LHS

$$\frac{x}{4} = \frac{1}{4} \left(\frac{7}{2} \right) = \frac{7}{8} = \text{RHS}$$

Q.15 $\frac{1}{3} - 2x = 0$

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

$$\Rightarrow x = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

check: putting $x = \frac{1}{6}$
in LHS

$$\frac{1}{3} - 2 \left(\frac{1}{6} \right)$$

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

$$= 0 = \text{RHS}$$

Q.16 $3(x+6) = 24$

$$\Rightarrow 3x + 18 = 24$$

$$\Rightarrow 3x = 24 - 18$$

$$\Rightarrow 3x = 6$$

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

Check: Putting $x = 2$ in LHS

$$3(2+6) = 3 \times 8 = 24 = \underline{\text{RHS}}$$

Q.17 $3(x+2) - 2(x-1) = 7$

Simplifying brackets

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

$$\Rightarrow (3x - 2x) + (6 + 2) = 7$$

$$\Rightarrow x + 8 = 7$$

$\Rightarrow$ Subtracting 8 from both sides.

$$x + 8 - 8 = 7 - 8$$

$$\Rightarrow x = -1$$

check: putting $x = -1$ to LHS

$$\begin{aligned} 3(-1+2) - 2(-1-1) &= 3(1) - 2(-2) \\ &= 3 + 4 = 7 = \text{RHS} \end{aligned}$$

Q.18 $8(2x-5) - 6(3x-7) = 1$

= Simplifying brackets

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

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

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

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

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

check: putting $x = \frac{1}{2}$ to LHS

$$8\left[2\left(\frac{1}{2}\right) - 5\right] - 6\left[3\left(\frac{1}{2}\right) - 7\right]$$

$$\begin{aligned}
 &= 8[1-5] - 6\left(\frac{3}{2} - 7\right) \\
 &= 8(-4) - 6\left(\frac{3-14}{2}\right) = -32 - 6\left(\frac{-11}{2}\right) \\
 &= -32 + 33 \\
 &= 1 = \text{RHS}
 \end{aligned}$$

Q19 $6(1-4x) + 7(2+5x) = 53$

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

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

$$\Rightarrow 11x + 20 = 53$$

$$\Rightarrow 11x = 53 - 20$$

$$\Rightarrow 11x = 33$$

$$\Rightarrow x = \frac{33}{11} \quad 3 \Rightarrow x = 3$$

check: putting $x=3$ to LHS

$$\begin{aligned}
 &6[1-4(3)] + 7[2+5(3)] \\
 &= 6(1-12) + 7(2+15) = 6(-11) + 7(17) \\
 &= -66 + 119 = 53 = \text{RHS}
 \end{aligned}$$

Q20 $5(2-3x) - 17(2x-5) = 16$

Simplifying brackets

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

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

$$\Rightarrow -49x + 95 = 16$$

$$\Rightarrow -49x = 16 - 95$$

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

check: $5 \left\{ 2 - 3 \left(\frac{79}{49} \right) \right\} - 17 \left\{ 2 \left(\frac{79}{49} \right) - 5 \right\}$

$$= 5 \left\{ 2 - \frac{237}{49} \right\} - 17 \left\{ \frac{158}{49} - 5 \right\}$$

$$= 5 \left\{ \frac{98 - 237}{49} \right\} + 17 \left\{ \frac{158 - 245}{49} \right\}$$

$$= 5 \left\{ \frac{-139}{49} \right\} - 17 \left\{ \frac{-87}{49} \right\}$$

$$= \frac{-695}{49} + \frac{1479}{49} = \frac{-695 + 1479}{49} = \frac{784}{49} = 16 = \text{RHS}$$

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

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

By cross multiplication.

$$\Rightarrow x - 3 = 5$$

$$\Rightarrow x = 5 + 3 = 8$$

check: putting $x = 8$ in LHS

$$\frac{8-3}{5} - 2 \Rightarrow \frac{5}{5} - 2$$

$$= 1 - 2$$

$$= -1 = \text{RHS}$$

Q.22 $5(x-2) + 3(x+1) = 25$

simplifying brackets we get

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

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

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

$$\Rightarrow 8x = 25 + 7 = 32$$

$$\Rightarrow x = \frac{32}{8} = 4$$

Check: putting $x=4$ in LHS

$$\begin{aligned} & 5(4-2) + 3(4+1) \\ &= 5(2) + 3(5) = 10 + 15 \\ &= 25 = \underline{\text{RHS}} \end{aligned}$$