

CSBE Class –VII Mathematics
NCERT Solutions
Simple Equations (Ex. 4.1)

Question 1. Complete the last column of the table:

S. No.	Equation	Value	Say, whether the Equation is satisfied. (Yes / No)
1	$x + 3 = 0$	$x = 3$	
2	$x + 3 = 0$	$x = 0$	
3	$x + 3 = 0$	$x = -3$	
4	$x - 7 = 1$	$x = 7$	
5	$x - 7 = 1$	$x = 8$	
6	$5x = 25$	$x = 0$	
7	$5x = 25$	$x = 5$	
8	$5x = 25$	$x = -5$	
9	$\frac{m}{3} = 2$	$m = -6$	
10	$\frac{m}{3} = 2$	$m = 0$	
11	$\frac{m}{3} = 2$	$m = 6$	

Answer:

S. No.	Equation	Value	Say, whether the Equation is satisfied. (Yes / No)
1	$x + 3 = 0$	$x = 3$	No
2	$x + 3 = 0$	$x = 0$	No
3	$x + 3 = 0$	$x = -3$	Yes
4	$x - 7 = 1$	$x = 7$	No
5	$x - 7 = 1$	$x = 8$	Yes
6	$5x = 25$	$x = 0$	No

7	$5x = 25$	$x = 5$	Yes
8	$5x = 25$	$x = -5$	No
9	$\frac{m}{3} = 2$	$m = -6$	No
10	$\frac{m}{3} = 2$	$m = 0$	No
11	$\frac{m}{3} = 2$	$m = 6$	Yes

Question 2. Check whether the value given in the brackets is a solution to the given equation or not:

(a) $n + 5 = 19$ ($n = 1$)

(b) $7n + 5 = 19$ ($n = -2$)

(c) $7n + 5 = 19$ ($n = 2$)

(d) $4p - 3 = 13$ ($p = 1$)

(e) $4p - 3 = 13$ ($p = -4$)

(f) $4p - 3 = 13$ ($p = 0$)

Answer: (a) $n + 5 = 19$ ($n = 1$)

Putting $n = 1$ in L.H.S.,

$$1 + 5 = 6$$

\therefore L.H.S. \neq R.H.S.,

$\therefore n = 1$ is not the solution of given equation.

(b) $7n + 5 = 19$ ($n = -2$)

Putting $n = -2$ in L.H.S.,

$$7(-2) + 5 = -14 + 5 = -9$$

\therefore L.H.S. \neq R.H.S.,

$\therefore n = -2$ is not the solution of given equation.

(c) $7n + 5 = 19$ ($n = 2$)

Putting $n = 2$ in L.H.S.,

$$7(2) + 5 = 14 + 5 = 19$$

\therefore L.H.S. = R.H.S.,

$\therefore n = 2$ is the solution of given equation.

(d) $4p - 3 = 13$ ($p = 1$)

Putting $p = 1$ in L.H.S.,

$$4(1) - 3 = 4 - 3 = 1$$

\therefore L.H.S. \neq R.H.S.,

$\therefore p = 1$ is not the solution of given equation.

(e) $4p - 3 = 13$ ($p = -4$)

Putting $p = -4$ in L.H.S.,

$$4(-4) - 3 = -16 - 3 = -19$$

\therefore L.H.S. \neq R.H.S.,

$\therefore p = -4$ is not the solution of given equation.

(f) $4p - 3 = 13$ ($p = 0$)

Putting $p = 0$ in L.H.S.,

$$4(0) - 3 = 0 - 3 = -3$$

\therefore L.H.S. \neq R.H.S.,

$\therefore p = 0$ is not the solution of given equation.

Question3. Solve the following equations by trial and error method:

(i) $5p + 2 = 17$

(ii) $3m - 14 = 4$

Answer: (i) $5p + 2 = 17$

Putting $p = -3$ in L.H.S. $5(-3) + 2 = -15 + 2 = -13$

$\therefore -13 \neq 17$ Therefore, $p = -3$ is not the solution.

Putting $p = -2$ in L.H.S. $5(-2) + 2 = -10 + 2 = -8$

$\therefore -8 \neq 17$ Therefore, $p = -2$ is not the solution.

Putting $p = -1$ in L.H.S. $5(-1) + 2 = -5 + 2 = -3$

$\therefore -3 \neq 17$ Therefore, $p = -1$ is not the solution.

Putting $p = 0$ in L.H.S. $5(0) + 2 = 0 + 2 = 2$

$\therefore 2 \neq 17$ Therefore, $p = 0$ is not the solution.

Putting $p = 1$ in L.H.S. $5(1) + 2 = 5 + 2 = 7$

$\therefore 7 \neq 17$ Therefore, $p = 1$ is not the solution.

Putting $p = 2$ in L.H.S. $5(2) + 2 = 10 + 2 = 12$

$\therefore 12 \neq 17$ Therefore, $p = 2$ is not the solution.

Putting $p = 3$ in L.H.S. $5(3) + 2 = 15 + 2 = 17$

$\therefore 17 = 17$ Therefore, $p = 3$ is the solution.

(ii) $3m - 14 = 4$

Putting $m = -2$ in L.H.S. $3(-2) - 14 = -6 - 14 = -20$

$\therefore -20 \neq 4$ Therefore, $m = -2$ is not the solution.

Putting $m = -1$ in L.H.S. $3(-1) - 14 = -3 - 14 = -17$

$\therefore -17 \neq 4$ Therefore, $m = -1$ is not the solution.

Putting $m = 0$ in L.H.S. $3(0) - 14 = 0 - 14 = -14$

$\therefore -14 \neq 4$ Therefore, $m = 0$ is not the solution.

Putting $m = 1$ in L.H.S. $3(1) - 14 = 3 - 14 = -11$

$\therefore -11 \neq 4$ Therefore, $m = 1$ is not the solution.

Putting $m = 2$ in L.H.S. $3(2) - 14 = 6 - 14 = -8$

$\therefore -8 \neq 4$ Therefore, $m = 2$ is not the solution.

Putting $m = 3$ in L.H.S. $3(3) - 14 = 9 - 14 = -5$

$\therefore -5 \neq 4$ Therefore, $m = 3$ is not the solution.

Putting $m = 4$ in L.H.S. $3(4) - 14 = 12 - 14 = -2$

$\therefore -2 \neq 4$ Therefore, $m = 4$ is not the solution.

Putting $m = 5$ in L.H.S. $3(5) - 14 = 15 - 14 = 1$

$\therefore 1 \neq 4$ Therefore, $m = 5$ is not the solution.

Putting $m = 6$ in L.H.S. $3(6) - 14 = 18 - 14 = 4$

$\therefore 4 = 4$ Therefore, $m = 6$ is the solution.

Question 4. Write equations for the following statements:

- (i) The sum of numbers x and 4 is 9.
- (ii) 2 subtracted from y is 8.
- (iii) Ten times a is 70.
- (iv) The number b divided by 5 gives 6.
- (v) Three-fourth of t is 15.
- (vi) Seven times m plus 7 gets you 77.
- (vii) One-fourth of a number x minus 4 gives 4.
- (viii) If you take away 6 from 6 times y , you get 60.
- (ix) If you add 3 to one-third of z , you get 30.

Answer: (i) $x + 4 = 9$

(ii) $y - 2 = 8$

(iii) $10a = 70$

(iv) $\frac{b}{5} = 6$

(v) $\frac{3}{4}t = 15$

(vi) $7m + 7 = 77$

(vii) $\frac{x}{4} - 4 = 4$

(viii) $6y - 6 = 60$

(ix) $\frac{z}{3} + 3 = 30$

Question 5. Write the following equations in statement form:

(i) $p + 4 = 15$

(ii) $m - 7 = 3$

(iii) $2m = 7$

(iv) $\frac{m}{5} = 3$

(v) $\frac{3m}{5} = 6$

(vi) $3p + 4 = 25$

(vii) $4p - 2 = 18$

(viii) $\frac{p}{2} + 2 = 8$

Answer: (i) The sum of numbers p and 4 is 15.

(ii) 7 subtracted from m is 3.

(iii) Two times m is 7.

(iv) The number m is divided by 5 gives 3.

(v) Three-fifth of the number m is 6.

(vi) Three times p plus 4 gets 25.

(vii) If you take away 2 from 4 times p , you get 18.

(viii) If you added 2 to half is p , you get 8.

Question 6. Set up an equation in the following cases:

(i) Irfan says that he has 7 marbles more than five times the marbles Parmit has. Irfan has 37 marbles. (Take m to be the number of Parmit's marbles.)

(ii) Laxmi's father is 49 years old. He is 4 years older than three times Laxmi's age. (Take Laxmi's age to be y years.)

(iii) The teacher tells the class that the highest marks obtained by a student in her class are twice the lowest marks plus 7. The highest score is 87. (Take the lowest score to be l .)

(iv) In an isosceles triangle, the vertex angle is twice either base angle. (Let the base angle be b in degrees. Remember that the sum of angles of a triangle is 180° .)

Answer: (i) Let m be the number of Parmit's marbles.

$$\therefore 5m + 7 = 37$$

(ii) Let the age of Laxmi be y years.

$$\therefore 3y + 4 = 49$$

(iii) Let the lowest score be l .

$$\therefore 2l + 7 = 87$$

(iv) Let the base angle of the isosceles triangle be b , so vertex angle = $2b$.

$$\therefore 2b + b + b = 180^\circ \Rightarrow 4b = 180^\circ \text{ [Angle sum property of a } \Delta \text{]}$$