

Board – CBSE

Class – 7th

Topic – Simple Equations 4.2

Q.1 Give first the step you will use to separate the variable and then solve the equation:

(a) $x - 1 = 0$ (b) $x + 1 = 0$ (c) $x - 1 = 5$ (d) $x + 6 = 2$
(e) $y - 4 = -7$ (f) $y - 4 = 4$ (g) $y + 4 = 4$ (h) $y + 4 = -4$

Sol: (a) $x - 1 = 0$

Adding 1 to both sides of the given equation, we obtain

$$x - 1 + 1 = 0 + 1$$

$$x = 1$$

(b) $x + 1 = 0$

Subtracting 1 from both sides of the given equation, we obtain

$$x + 1 - 1 = 0 - 1$$

$$x = -1$$

(c) $x - 1 = 5$

Adding 1 to both sides of the given equation, we obtain

$$x - 1 + 1 = 5 + 1$$

$$x = 6$$

(d) $x + 6 = 2$

Subtracting 6 from both sides of the given equation, we obtain

$$x + 6 - 6 = 2 - 6$$

$$x = -4$$

(e) $y - 4 = -7$

Adding 4 to both sides of the given equation, we obtain

$$y - 4 + 4 = -7 + 4$$

$$y = -3$$

(f) $y - 4 = 4$

Adding 4 to both sides of the given equation, we obtain

$$y - 4 + 4 = 4 + 4$$

$$y = 8$$

$$(g) y + 4 = 4$$

Subtracting 4 from both sides of the given equation, we obtain

$$y + 4 - 4 = 4 - 4$$

$$y = 0$$

$$(h) y + 4 = -4$$

Subtracting 4 from both sides of the given equation, we obtain

$$y + 4 - 4 = -4 - 4$$

$$y = -8$$

Q.2 Give first the step you will use to separate the variable and then solve the equation:

$$(a) 3l = 42$$

$$(b) \frac{b}{2} = 6$$

$$(c) \frac{p}{7} = 4$$

$$(d) 4x = 25$$

$$(e) 8y = 36$$

$$(f) \frac{z}{3} = \frac{5}{4}$$

$$(g) \frac{a}{5} = \frac{7}{15}$$

$$(h) 20t = -10$$

Sol: (a) $3l = 42$

Dividing both sides of the given equation by 3, we obtain

$$\frac{3l}{3} = \frac{42}{3}$$

$$l = 14$$

$$(b) \frac{b}{2} = 6$$

Multiplying both sides of the given equation by 2, we obtain

$$\frac{b \times 2}{2} = 6 \times 2$$

$$b = 12$$

$$(c) \frac{p}{7} = 4$$

Multiplying both sides of the given equation by 7, we obtain

$$\frac{p \times 7}{7} = 4 \times 7$$

$$p = 28$$

$$(d) 4x = 25$$

Dividing both sides of the given equation by 4, we obtain

$$\frac{4x}{4} = \frac{25}{4}$$

$$x = \frac{25}{4}$$

(e) $8y = 36$

Dividing both sides of the given equation by 8, we obtain

$$\frac{8y}{8} = \frac{36}{8}$$

$$y = \frac{9}{2}$$

(f) $\frac{z}{3} = \frac{5}{4}$

Multiplying both sides of the given equation by 3, we obtain

$$\frac{z \times 3}{3} = \frac{5 \times 3}{4}$$

$$z = \frac{15}{4}$$

(g) $\frac{a}{5} = \frac{7}{15}$

Multiplying both sides of the given equation by 5, we obtain

$$\frac{a \times 5}{5} = \frac{7 \times 5}{15}$$

$$a = 7/3$$

(h) $20t = -10$

Dividing both sides of the given equation by 20, we obtain

$$\frac{20t}{20} = \frac{-10}{20}$$

$$t = \frac{-1}{2}$$

Q.3 Give the steps you will use to separate the variable and then solve the equation:

(a) $3n - 2 = 46$ (b) $5m + 7 = 17$ (c) $\frac{20p}{3} = 40$ (d) $\frac{3p}{10} = 6$

Sol: (a) $3n - 2 = 46$

Adding 2 to both sides of the given equation, we obtain

$$3n - 2 + 2 = 46 + 2$$

$$3n = 48$$

Dividing both sides of the given equation by 3, we obtain

$$\frac{3n}{3} = \frac{48}{3}$$

$$n = 16$$

(b) $5m + 7 = 17$

Subtracting 7 from both sides of the given equation, we obtain

$$5m + 7 - 7 = 17 - 7$$

$$5m = 10$$

Dividing both sides of the given equation by 5, we obtain

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

$$m = 2$$

(c) $\frac{20p}{3} = 40$

Multiplying both sides of the given equation by 3, we obtain

$$\frac{20p \times 3}{3} = 40 \times 3$$

$$20p = 120$$

Dividing both sides of the given equation by 20, we obtain

$$\frac{20p}{20} = \frac{120p}{20}$$

$$p = 6$$

(d) $\frac{3p}{10} = 6$

Multiplying both sides of the given equation by 10, we obtain

$$\frac{3p \times 10}{10} = 6 \times 10$$

$$3p = 60$$

Dividing both sides of the given equation by 3, we obtain

$$\frac{3p}{3} = \frac{60}{3}$$

$$p = 20$$

Q.4 Solve the following equations:

(a) $10p = 100$

(b) $10p + 10 = 100$

(c) $\frac{p}{4} = 5$

(d) $\frac{-p}{3} = 5$

$$(e) \frac{3p}{4} = 6$$

$$(f) 3s = -9$$

$$(g) 3s + 12 = 0$$

$$(h) 3s = 0$$

$$(i) 2q = 6$$

$$(j) 2q - 6 = 0$$

$$(k) 2q + 6 = 0$$

$$(l) 2q + 6 =$$

12

Sol: (a) $10p = 100$,

$$\frac{10p}{10} = \frac{100}{10}$$

$$p = 10$$

(b) $10p + 10 = 100$

$$10p + 10 - 10 = 100 - 10$$

$$10p = 90$$

$$\frac{10p}{10} = \frac{90}{10}$$

$$p = 9$$

(c) $\frac{p}{4} = 5$

$$\frac{p \times 4}{4} = 5 \times 4$$

$$p = 20$$

(d) $\frac{-p}{3} = 5$

$$\frac{-p \times (-3)}{3} = 5 \times (-3)$$

$$p = -15$$

(e) $\frac{3p}{4} = 6$

$$\frac{3p \times 4}{4} = 6 \times 4$$

$$3p = 24$$

$$\frac{3p}{3} = \frac{24}{3}$$

$$p = 8$$

(f) $3s = -9$

$$\frac{3s}{3} = \frac{-9}{3}$$

$$s = -3$$

$$(g) 3s + 12 = 0$$

$$3s + 12 - 12 = 0 - 12$$

$$3s = -12$$

$$\frac{3s}{3} = \frac{-12}{3}$$

$$s = -4$$

$$(h) 3s = 0$$

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

$$s = 0$$

$$(i) 2q = 6$$

$$\frac{2q}{2} = \frac{6}{2}$$

$$q = 3$$

$$(j) 2q - 6 = 0$$

$$2q - 6 + 6 = 0 + 6$$

$$2q = 6$$

$$\frac{2q}{2} = \frac{6}{2}$$

$$q = 3$$

$$(k) 2q + 6 = 0$$

$$2q + 6 - 6 = 0 - 6$$

$$2q = -6$$

$$\frac{2q}{2} = \frac{-6}{2}$$

$$q = -3$$

$$(l) 2q + 6 = 12$$

$$2q + 6 - 6 = 12 - 6$$

$$2q = 6$$

$$\frac{2q}{2} = \frac{6}{2}$$

$$q = 3$$