CLASS NOTES-ANSWERS

EXERCISE 4.2

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)
$$x + 6 = 2$$

(d)
$$x + 6 = 2$$
 (e) $y - 4 = -7$ (f) $y - 4 = 4$

(f)
$$y - 4 = 4$$

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

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

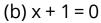
Answer:

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

Adding one to both sides of the equation we get,

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

$$x = 1$$





Subtracting one from both sides of the equation we get,

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

$$x = -1$$

(c)
$$x - 1 = 5$$

Adding one to both sides of the equation we get,

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

$$x = 6$$

(d)
$$x + 6 = 2$$

Subtracting 6 from both sides of the equation we get,

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

$$x = -4$$

e)
$$y - 4 = -7$$

Adding 4 to both sides of the equation we get,

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

$$y = -3$$

(f)
$$y - 4 = 4$$

Adding 4 to both sides of the equation we get,

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

$$y = 8$$

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

Subtracting 4 from both sides of the equation we get,

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

$$y = 0$$

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

Subtracting 4 from both sides of the equation we get,

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

$$y = -8$$

- 2. Give first the step you will use to separate the variable and then solve the equation:
 - (a) 3I = 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

(a)
$$3I = 42$$

Divide both the sides by 3 we get,

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

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

Multiplying both sides by 2,

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

$$b = 12$$

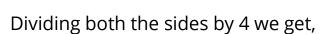
(c)
$$\frac{p}{7} = 4$$

Multiplying both sides by 7,

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

$$p = 28$$

(d)
$$4x = 25$$



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

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

(e)
$$8y = 36$$

Dividing both the sides by 8 we get,

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

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

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

Multiplying both sides by 3 we get,

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

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

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

Multiplying both sides by 5 we get,

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

$$a = \frac{7}{3}$$

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

Dividing both sides by 20 we get,

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

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

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

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

Answer:

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

Adding 2 to both sides of the equation, we get

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

$$3n = 48$$

Dividing both the sides by 3 we get,

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

(b)
$$5m + 7 = 17$$

Subtracting 7 from both sides of the equation, we get

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

$$5m = 10$$

Dividing both the sides by 5 we get,

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

$$m = 2$$

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

Multiplying both the sides by 3 we get,

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

$$20 p = 120$$

Dividing both the sides by 20 we get,

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

$$p = 6$$

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

Multiplying both the sides by 10 we get,

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

$$3p = 60$$

Dividing both the sides by 20 we get,

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

$$p = 20$$

4. Solve the following equations:

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(a)
$$10p = 100$$

(b)
$$10p + 10 = 100$$

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

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

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

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

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

$$(h) 3s = 0$$

(i)
$$2q = 6$$

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

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

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

Answer:

(a)
$$10p = 100$$

Dividing both the sides by 10 we get,

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

$$p = 10$$

(b)
$$10p + 10 = 100$$

Subtracting 10 from both sides we get,

$$10p = 90$$

Dividing both the sides by 10 we get,

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

$$p = 9$$

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

Multiplying both the sides by 4 we get,

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

$$p = 20$$

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

Multiplying both the sides by 3 we get,

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

$$-p = 15$$

$$p = -15$$

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

Multiplying both the sides by 4,

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

$$3p = 24$$

Dividing both the sides by 3 we get,

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

$$p = 8$$

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

Dividing both the sides by 3

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

$$s = -3$$

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

Subtracting 12 from both the sides of the equation we get,

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

$$3s = -12$$

Dividing both the sides by 3 we get,

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

$$s = -4$$

(h)
$$3s = 0$$

Dividing both the sides by 3 we get,

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

$$s = 0$$

(i)
$$2q = 6$$

Dividing both the sides by 2 we get,

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

$$q = 3$$

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

Adding 6 to both sides of the equation we get,

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

$$2q = 6$$

Dividing both the sides by 2 we get

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

$$q = 3$$

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

Subtracting 6 from both the sides of the equation we get,

$$2q = -6$$

Dividing both the sides by 2 we get,

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

$$q = -3$$

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



Subtracting 6 from both the sides of the equation we get,

$$2q = 6$$

Dividing both the sides by 2 we get

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

$$q = 3$$

