CLASS 6TH

MATHS

CHAPTER- 11th

ALGEBRA

learnkwniy

EXERCISE- 11.1

NCERT SOLUTION

1. Find the rule which gives the number of matchsticks required to make the following matchstick patterns. Use a variable to write the rule.

(a) A pattern of letter T as ⊤

Ans.

A pattern of letter T is $2n$. (As 2 matchstick are used in that pattern).

(b) A pattern of letter Z as ⟋

Ans.

A pattern of letter T is $3n$. (As 3 matchstick are used in that pattern).

(c) A pattern of letter U as ⊔

Ans.

A pattern of letter T is $3n$. (As 3 matchstick are used in that pattern).

(d) A pattern of letter V as ∨

Ans.

A pattern of letter T is $2n$. (As 2 matchstick are used in that pattern).

(e) A pattern of letter E as E

Ans.

A pattern of letter T is $5n$. (As 5 matchstick are used in that pattern).

(f) A pattern of letter S as ⊑

Ans.

A pattern of letter T is $5n$. (As 5 matchstick are used in that pattern).

(g) A pattern of letter A as ⊟

Ans.

A pattern of letter T is $6n$. (As 6 matchstick are used in that pattern).

2. We already know the rule for the pattern of letters L, C and F. Some of the letters from Q.1 (given above) give us the same rule as that given by L. Which are these? Why does this happen?

Ans.

Rule for L, T and V are same $2n$ as they require 2 matchsticks.
Rule for C, F and U are same $3n$ as they require 3 matchsticks.

3. Cadets are marching in a parade. There are 5 cadets in a row. What is the rule which gives the number of cadets, given the number of rows? (Use n for the number of rows.)

Ans.

Number of Rows $= n$
Number of cadet in each row $= 5$
$\therefore$ Total Number of Cadet $= 5n$

4. If there are 50 mangoes in a box, how will you write the total number of mangoes in terms of the number of boxes? (Use b for the number of boxes.)

Ans.

Number of Boxes $= b$
Number of Mangoes in one box $= 50$
$\therefore$ Total Number of mangoes $= 50b$

5. The teacher distributes 5 pencils per student. Can you tell how many pencils are needed, given the number of students? (Use s for the number of students.)
Ans.

Number of Student = s

Number of pencil to each student = 5

∴Total Number of pencil needed are = 5s

6. A bird flies 1 kilometer in one minute. Can you express the distance covered by the bird in terms of its flying time in minutes? (Use t for flying time in minutes? (Use t for flying time in minutes.)
Ans.

Flying time in minutes = t

Speed of bird = 1km in 1minute

∴ Distance covered by bird in terms of its flying time = $1 \times t = t$

7. Radha is drawing a dot Rangoli (a beautiful pattern of lines joining dots) with chalk powder. She has 9 dots in a row. How many dots will her Rangoli have for r rows? How many dots are there if there are 8 rows? If there are 10 rows?
Ans.

Number of Rows = r

Number of dots in one row = 9

∴ Total number of dots = 9r

Number of dots in 8 rows = $8 \times 9 = 72$

Number of dots in 10 rows = $10 \times 9 = 80$

8. Leela is Radha's younger sister. Leela is 4 years younger than Radha. Can you write Leela's age in terms of Radha's age? Take Radha's age to be x years.
Ans.

Radha age be = x years

∴ Leela's age will be = $(x - 4)$ years

9. Mother has made laddus. She gives some laddus to guests and family members; still 5 laddus remain. If the number of laddus mother gave away is l, how many laddus did she make?

Ans.
Number of laddus gave away = l
Number of laddus remaining = 5
∴ Total number of laddus that she make = $5l$

10. Oranges are to be transferred from larger boxes into smaller boxes. When a large box is emptied, the oranges from it fill two smaller boxes and still 10 oranges remain outside. If the number of oranges in a small box are taken to be x, what is the number of oranges in the larger box?

Ans.
Number of oranges in small box = x
Number of small box = 2
∴ Total number of oranges in small box = $2x$
Remaining oranges = 10
Thus number of oranges in larger box = $2x + 10$

11. (a) Look at the following matchstick pattern of squares (Fig 11.6). The squares are not separate. Two neighbouring squares have a common matchstick. Observe the patterns and find the rule that gives the number of matchsticks in terms of the number of squares. (Hint: If you remove the vertical stick at the end, you will get a pattern of Cs.)

(a)   (b)   (c)   (d)
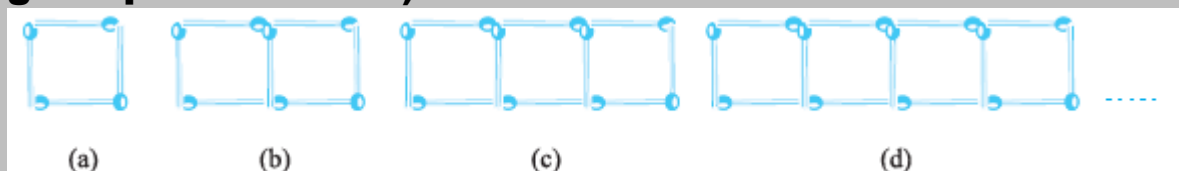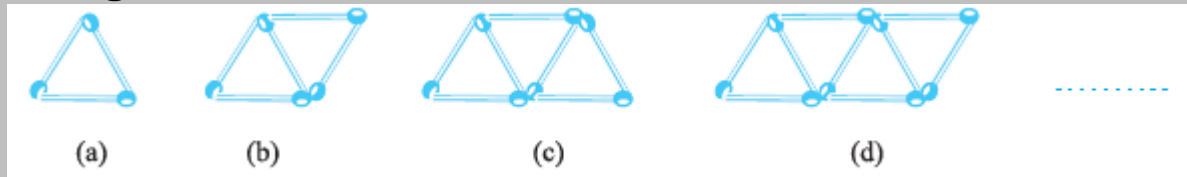
Ans.
(a) 4 Matchsticks
(b) 7 Matchsticks
(c) 10 Matchsticks

(d) 13 Matchsticks
Hence, the required equation is $3x + 1$, where x is the number of squares.

(b) Fig 11.7 gives a matchstick pattern of triangles. As in Exercise 11 (a) above, find the general rule that gives the number of matchsticks in terms of the number of triangles.

(a)   (b)   (c)   (d)

Ans.
(a) 3 Matchstick
(b) 5 Matchstick
(c) 7 Matchstick
(d) 9 Matchstick
Hence, the required equation is $2x + 1$, where x is the number of triangles.

EXERCISE- 11.2

NCERT SOLUTION

1. The side of an equilateral triangle is shown by l. Express the perimeter of the equilateral triangle using l.
Ans.
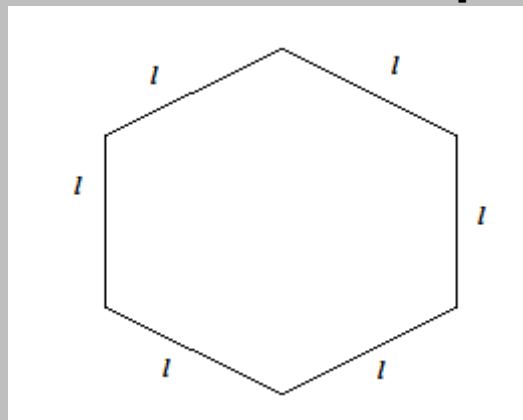Side of Equilateral triangle $= l$
Perimeter of an Equilateral triangle $= 3 \times$ side
$$= 3 \times l$$
$$= 3l \text{ unit}$$

2. The side of a regular hexagon (See figure) is denoted by l. Express the perimeter of the hexagon using l. (Hint: A regular hexagon has all its six sides equal in length)
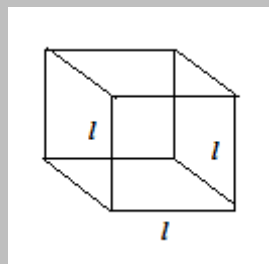

Ans.

Side of regular hexagon $= l$
Perimeter of a regular hexagon $= 6 \times$ side
$$= 6 \times l$$
$$= 6l \text{ unit}$$

3. A cube is a three-dimensional figure as shown in (see figure). It has six faces and all of them are identical squares. The length of an edge of the cube is given by l. Find the formula for the total length of the edges of a cube.


Ans.

Given, Cube has 6 identical faces
Edges of Cube $= 12$
Total length of edges of the given cube $= 12 \times l$
$\therefore$ Total length of edges of the cube $= 12l$

4. The diameter of a circle is a line which joins two points on the circle and also passes through the centre of the circle. (In the adjoining figure AB is a diameter of the circle; C is its centre). Express the diameter of the circle (d) in terms of its radius (r).
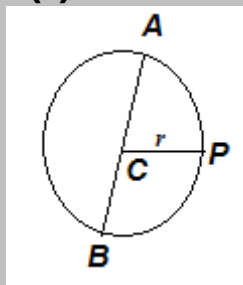
Ans.
Given, Radius $= r$ and diameter $= d$
$\therefore$ Diameter $= 2 \times Radius = 2 \times r$
So, diameter $= 2r$

5. To find sum of three numbers 14, 27 and 13, we can have two ways;
(a) We may first add 14 and 27 to get 41 and then add 13 to it to get the total sum 54 or
(b) We may add 27 and 13 to get 13 to get 40 and then add 14 to get the sum 54.
Thus, (14 + 27) + 13 = 14 + (27 + 13)
This can be done for any three numbers. This property is known as the associativity of addition of numbers.
Express this property which we have already studied in the chapter on whole numbers, in a general way, by using a, b, and c.
Ans.
Given three numbers $= a, b,$ and c
By using Associative property we get,
$(a + b) + c = a + (b + c)$

EXERCISE- 11.3

NCERT SOLUTION

1. Make up as many expressions with numbers (no variables) as you can from three numbers 5, 7 and 8. Every number should be used not more than once. Use only addition, subtraction and multiplication.

Ans.

(i) $5 + (7 + 8)$

(ii) $7 + (8 + 5)$

(iii) $8 + (5 + 7)$

(iv) $5 \times (8 - 7)$

(v) $8 \times (5 + 7)$

(vi) $7 \times (8 - 5)$

(vii) $(8 \times 7) - 5$

(viii) $8 - (7 - 5)$

(ix) $8 \times (7 - 5)$

(x) $7 + (8 \times 5)$

2. Which out of the following are expressions with numbers only?

(a) y + 3

(b) (7 x 20) – 8z

(c) 5(21 – 7) + 7 x 2

(d) 5

(e) 3x

(f) 5 – 5n

(g) (7 x 20) – (5 x 10) – 45 + p

Ans.

(c) and (d) are the expression with number only. As we can see there is no variable in these expression.

3. Identify the operations (addition, subtraction, division, multiplication) in forming the following expressions and tell how the expressions have been formed:

(a) z + 1, z − 1, y + 17, y −17

Ans.

z + 1 = Addition (1 is added to z)

z – 1 = Subtraction (1 is subtracted from z)

y + 17 = Addition (17 is added to z)

y – 17 = subtraction (17 is subtracted from y)

(b) 17y, $\frac{y}{17}$, 5z

Ans.

17y = Multiplication (y is multiplied by 17)

$\frac{y}{17}$ = Division (y is divided by 17)

5z = Multiplication (z is multiplied by 5)

(c) 2y + 17, 2y − 17

Ans.

2y + 17 = Multiplication and Addition (y is multiplied by 2 and 17 is added to the result)

2y – 17 = Multiplication and subtraction (y is multiplied by 2 and 17 is subtracted from the result)

(d) 7m, −7m + 3, −7m – 3

Ans.

7m = Multiplication (m is multiplied by 7)

−7m + 3 = Multiplication and Addition (m is multiplied by −7 and 3 is added to the result)

−7m − 3 = Multiplication and Subtraction (m is multiplied by −7 and 3 is subtracted from the result)

4. Give expressions for the follow
(a) 7 added to p

Ans.

p + 7

(b) 7 subtracted from p

Ans.

p – 7

(c) p multiplied by 7

Ans.

7p

(d) p divided by 7

Ans.

$$\frac{p}{7}$$

(e) 7 subtracted from –m

Ans.

$-m - 7$

(f) -p multiplied by 5

Ans.

$-5p$

(g) −p divided by 5

Ans.

$$\frac{-p}{5}$$

(h) p multiplied by -5

$-5p$

5. Give expressions in the following cases:

(a)11 added to 2m

Ans.

$2m + 11$

(b) 11 subtracted from 2m

Ans.

$2m - 11$

(c) 5 times y to which 3 is added

Ans.

$5y + 3$

(d) 5 times y from which 3 is subtracted

Ans.

$5y - 3$

(e) y is multiplied by -8

$-8y$

(f) y is multiplied by -8 and then 5 is added to the result

Ans.

$-8y + 5$

(g) y is multiplied by 5 and the result is subtracted from 16

Ans.

$16 - 5y$

(h) y is multiplied by -5 and the result is added to 16.

Ans.

$-5y + 16$

6. (a) Form expressions using t and 4. Use not more than one number operation. Every expression must have t in it.

Ans.

The possible expression are:

$t + 4, t - 4, t \times 4, \frac{t}{4}$

(b) Form expressions using y, 2 and 7. Every expression must have y in it. Use only two number operations. These should, be different.

Ans.

$2y + 7, 7y + 2, 2y - 7, 7y - 2, \dfrac{2y}{7}, \dfrac{7}{2y}$

EXERCISE- 11.4

NCERT SOLUTION

1. Answer the following:

(a) Take Sarita's present age to be y years.

(i) What will be her age 5 years from now?

Ans.

Sarita's present age be = y years

After 5years her age will be = y + 5

(ii) What was her age 3 years back?

Ans.

Sarita's present age be = y years

Her age 3 years back= y – 3

(iii) Sarita's grandfather is 6 times her age. What is the age of her grandfather?

Ans.

Sarita's present age be = y years

Sarita's grandfather age is 6 times her age = 6 × y = 6y

(iv) Grandmother is 2 years younger than grandfather. What is grandmother's age?

Ans.

Sarita's present age be = y years

Sarita's grandfather age is 6 times her age = 6 × y = 6y

Sarita's grandmother is 2 years younger than grandfather = (6y + 2) years

(v) Sarita's father's age is 5 years more than 3 times Sarita's age. What is her father's age?

Ans.

Sarita's present age be = y years

Sarita's father's age is 5years more than 3 times her age = (3y + 5) years

(b) The length of a rectangular hall is 4 metres less than 3 times the breadth of the hall. What is the length, if the breadth is b metres?

Ans.

Let the breadth of the hall = b metres

Length of a hall is 4metres less than 3 times the breadth of the hall = (3b − 4) metres

(c) A rectangular box has height h cm. Its length is 5 times the height and breadth is 10 cm less than the length. Express the length and the breadth of the box in terms of the height.

Ans.

Height of the box = h cm

Length of the box = 5 times the height = $5 \times h$ = 5h cm

Breadth of the box = 10cm less than the length = 5h – 10

(d) Meena, Beena and Leena are climbing the steps to the hill top. Meena is at step s, Beena is 8 steps ahead and Leena 7 steps behind. Where are Beena and Meena? The total number of steps to the hill top is 10 less than 4 times what Meena has reached. Express the total number of steps using s.

Ans.

Meena is at step s

Beena is at (s + 8) steps and Leena is at (s – 7) steps.

Total Number of steps to the hill top is 10 less than 4 times what meena had reached = (4s – 10)

(e) A bus travels at v km per hour. It is going from Daspur to Beespur. After the bus has travelled 5 hours, Beespur is still 20 km away. What is the distance from Daspur to Beespur? Express it using v.

Ans.

Speed of bus = v km

Time taken = 5hrs

Distance travelled by bus in 5hrs = 5v km

$\therefore$ Distance from Daspur to Beespur = (5v + 20) km

2. Change the following statements using expressions into statements in ordinary language.
(For example, Given Salim scores r runs in a cricket match, Nalin scores (r + 15) runs. In ordinary language – Nalin scores 15 runs more than Salim.
(a) A notebook costs ₹p. A book costs ₹3p.

Ans.

Cost of book is 3 times the cost of notebook

(b) Tony puts q marbles on the table. He has 8q marbles in his box.

Ans.

Number of marbles in the box is 8 times the marbles on the table.

(c) Our class has n students. The school has 20n students.

Ans.

Number of students in the school is 20 times than that of our class.

(d) Jaggu is z years old. His uncle is 4z years old and his aunt is (4z – 3) years old.

Ans.

Jaggu's uncle age is 4 times the age of jaggu and jaggu's aunt is 3 years younger than his uncle.

(e) In an arrangement of dots there are r rows. Each row contains 5 dots.

Ans.

Number of dots in a row is 5 times the number of row.

3. (a) Given Mannu's age to be x years, Can you guess what (x – 2) may show? (Hint: Think of Mannu's younger brother) can you guess what (x + 4) may now? What (3x + 7) may show?

Ans.

Given, Manu's age $= x$

$\therefore (x - 2)$ years may be the age of her younger brother or younger sister.

$(x + 4)$ years may be the age of her elder brother or sister.

$(3x + 7)$ years may be the age of his mother, father or uncle.

(b) Given Sara's age today to be y years. Think of her age in the future or in the past. What will the following expression indicate?

y + 7, y – 3, y + 4$\frac{1}{2}$, y – 2$\frac{1}{2}$.

Ans.

Present age of Sara's $=$ y years.

$y + 7$ shows her age 7 years in future.

$y - 3$ shows her age 3 years in the past.

$y + 4\frac{1}{2}$ shows her age $4\frac{1}{2}$ years in future.

$y - 2\frac{1}{2}$ shows her age $2\frac{1}{2}$ in the past.

(c) Given n students in the class like football, what may $2\,n$ show? What may $\frac{n}{2}$ show? (Think of games other than football).

Ans.

Given, No. of Students like football $= n$

$2n$ shows number of student like to play games other than football (i.e., tennis).

$\frac{n}{2}$ shows number of student like to play games other than football (i.e., cricket).

EXERCISE- 11.5

NCERT SOLUTION

1. State which of the following are equations (with a variable). Give reason for your answer. Identify the variable from the equations with a variable.
(a) 17 = $x + 7$

Ans.

It is an equation with variable x.

(b) $(t - 7) > 5$

Ans.

It is not an equation with variable since there is no equal sign.

(c) $\frac{4}{2}$ **= 2**

Ans.

It is an equation with no variable.

(d) (7 $\times$ 3) – 19 = 8

Ans.

It is an equation with no variable.

(e) 5 $\times$ 4 – 8 = 2x

Ans.

It is an equation with variable x

(f) $x - 2$ **= 0**

Ans.

It is an equation with variable x

(g) 2 $m < $ **30**

Ans.

It is an equation since there is no equal sign.

(h) 2 $n + $ **1 = 11**

Ans.

It is an equation with variable n.

(i) 7 = (11 × 5) – (12 × 4)

Ans.

It is an equation with no variable.

(j) 7 = (11 × 2) + p

Ans.

It is an equation with variable p.

(k) 20 = 5y

Ans.

It is an equation with variable y.

(l) $\frac{3q}{2} < 5$

Ans.

It is not an equation since there is no equal sign.

(m) z + **12 > 24**

Ans.

It is not an equation since there is no equal sign.

(n) 20 – (10 – 5) = 3 × 5

Ans.

It is an equation with no variable.

(o) $7 - x = 5$

Ans.

It is an equation with variable x.

2. Complete the entries in the third column of the table.

S. No.	Equation	Value of variable	Equation satisfied Yes/No
(a)	$10y = 80$	$y = 10$	
(b)	$10y = 80$	$y = 8$	
(c)	$10y = 80$	$y = 5$	
(d)	$4l = 20$	$l = 20$	
(e)	$4l = 20$	$l = 80$	
(f)	$4l = 20$	$l = 5$	
(g)	$b + 5 = 9$	$b = 5$	
(h)	$b + 5 = 9$	$b = 9$	
(i)	$b + 5 = 9$	$b = 4$	
(j)	$h - 8 = 5$	$h = 13$	
(k)	$h - 8 = 5$	$h = 8$	
(l)	$h - 8 = 5$	$h = 0$	
(m)	$p + 3 = 1$	$p = 3$	
(n)	$p + 3 = 1$	$p = 1$	
(o)	$p + 3 = 1$	$p = 0$	
(p)	$p + 3 = 1$	$p = -1$	
(q)	$p + 3 = 1$	$p = -2$	

Ans.

S. No.	Equation	Value of variable	Equation satisfied Yes/No
(a)	$10y = 80$	$y = 10$	No
(b)	$10y = 80$	$y = 8$	Yes
(c)	$10y = 80$	$y = 5$	No
(d)	$4l = 20$	$l = 20$	No
(e)	$4l = 20$	$l = 80$	No
(f)	$4l = 20$	$l = 5$	Yes
(g)	$b + 5 = 9$	$b = 5$	No
(h)	$b + 5 = 9$	$b = 9$	No
(i)	$b + 5 = 9$	$b = 4$	Yes
(j)	$h - 8 = 5$	$h = 13$	Yes
(k)	$h - 8 = 5$	$h = 8$	No
(l)	$h - 8 = 5$	$h = 0$	No
(m)	$p + 3 = 1$	$p = 3$	No
(n)	$p + 3 = 1$	$p = 1$	No
(o)	$p + 3 = 1$	$p = 0$	No
(p)	$p + 3 = 1$	$p = -1$	No
(q)	$p + 3 = 1$	$p = -2$	Yes

3. Pick out the solution from the values given in the brackets next to each equation. Show that the other values do not satisfy the equation.

(a) 5m = 60 (10, 5, 12, 15)

Ans.

$m = 10$ $LHS = 5m = 5 \times 10 = 50; RHS = 60$

Here $LHS \neq RHS$

$\therefore m = 10$ is not the solution of the equation.

$m = 5$ $LHS = 5m = 5 \times 5 = 25; RHS = 60$

Here $LHS \neq RHS$

∴ m = 5 is not the solution of the equation.

m = 12   LHS = 5m = 5 × 12 = 60; RHS = 60

Here LHS = RHS

∴ m = 12 is the solution of the equation.

m = 15   LHS = 5m = 5 × 15 = 75; RHS = 60

Here LHS ≠ RHS

∴ m = 15 is not the solution of the equation.

(b) n + 12 = 20 (12, 8, 20, 0)

Ans.

n = 12   LHS = n + 12 = 12 + 12 = 24; RHS = 20

Here LHS ≠ RHS

∴ n = 12 is not the solution of the equation.

n = 8 LHS = n + 12 = 8 + 12 = 20; RHS = 20

Here LHS = RHS

∴ n = 8 is the solution of the equation.

n = 20   LHS = n + 12 = 20 + 12 = 32; RHS = 20

Here LHS ≠ RHS

∴ n = 20 is not the solution of the equation.

n = 0 LHS = n + 12 = 0 + 12 = 12; RHS = 20

Here LHS ≠ RHS

∴ n = 0 is not the solution of the equation.

(c) p − 5 = 5 (0, 10, 5, −5)

Ans.

$P = 0$ $LHS = p - 5 = 0 - 5 = -5$; $RHS = 5$

Here $LHS \neq RHS$

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

$P = 10$ $LHS = p - 5 = 10 - 5 = 5$; $RHS = 5$

Here $LHS = RHS$

$\therefore p = 10$ is the solution of the equation.

$P = 5$ $LHS = p - 5 = 5 - 5 = 0$; $RHS = 5$

Here $LHS \neq RHS$

$\therefore p = 5$ is not the solution of the equation.

$P = -5$ $LHS = p - 5 = -5 - 5 = -10$; $RHS = 5$

Here $LHS \neq RHS$

$\therefore p = -5$ is not the solution of the equation.

(d) $\frac{q}{2}$ **= 7 (7, 2, 10, 14)**

Ans.

$q = 7$ $LHS = \frac{q}{2} = \frac{7}{2}$; $RHS = 7$

Here $LHS \neq RHS$

$\therefore q = 7$ is not the solution of the equation.

$q = 2$ $LHS = \frac{q}{2} = \frac{2}{2} = 1$; $RHS = 7$

Here $LHS \neq RHS$

$\therefore q = 2$ is not the solution of the equation.

$q = 10$ $LHS = \frac{q}{2} = \frac{10}{2} = 5$; $RHS = 7$

Here $LHS \neq RHS$

∴ q = 7 is not the solution of the equation.

q = 14   LHS $= \frac{q}{2} = \frac{14}{2} = 7$; RHS = 7

Here LHS = RHS

∴ q = 7 is the solution of the equation.

(e) r – 4 = 0 (4, −4, 8, 0)

Ans.

r = 4   LHS = r – 4 = 4 – 4 = 0; RHS = 0

Here LHS = RHS

∴ r = 4 is the solution of the equation.

r = −4   LHS = r – 4 = −4 – 4 = −8; RHS = 0

Here LHS ≠ RHS

∴ r = −4 is the solution of the equation.

r = 8   LHS = r – 4 = 8 – 4 = 4; RHS = 0

Here LHS ≠ RHS

∴ r = 8 is the solution of the equation.

r = 0   LHS = r – 4 = 0 – 4 = −4; RHS = 0

Here LHS ≠ RHS

∴ r = 0 is the solution of the equation.

(f) x + 4 = 2 (−2, 0, 2, 4)

Ans.

x = −2   LHS = x + 4 = −2 + 4 = 2; RHS = 2

Here LHS = RHS

∴ r = −2 is the solution of the equation.

$x = 0$ LHS $= x + 4 = 0 + 4 = 4$; RHS $= 2$

Here LHS $\neq$ RHS

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

$x = 2$ LHS $= x + 4 = 2 + 4 = 6$; RHS $= 2$

Here LHS $\neq$ RHS

$\therefore r = 2$ is not the solution of the equation.

$x = 4$ LHS $= x + 4 = 4 + 4 = 8$; RHS $= 2$

Here LHS $\neq$ RHS

$\therefore r = 4$ is not the solution of the equation.

4. (a) Complete the table and by inspection of the table find the solution to the equation m + 10 = 16

m	1	2	3	4	5	6	7	8	9	10
m + 10	...	...	...	...	...	...	...	...	...	...

Ans.

m	1	2	3	4	5	6	7	8	9	10
m + 10	11	12	13	14	15	16	17	18	19	20

$m + 10 = 16$

At $m = 6, m + 10 = 16$

$m = 16$ is the solution.

(b) Complete the table and by inspection of the table find the solution to the equation 5t = 35

T	3	4	5	6	7	8	9	10	11
5t	...	...	...	...	...	...	...	...	...

Ans.

t	3	4	5	6	7	8	9	10	11
5t	15	20	25	30	35	40	45	50	55

At $t = 7$, $5t = 35$

$t = 7$ is the solution.

(c) Complete the table and find solution of $z/3 = 4$ using the table.

Z	8	9	10	11	12	13	14	15	16
$\dfrac{z}{3}$	$\dfrac{8}{3} = 2\dfrac{2}{3}$	3	$\dfrac{10}{3} = 3\dfrac{1}{3}$	...	...	...	...	...	...

Ans.

Z	8	9	10	11	12	13	14	15	16
$\dfrac{z}{3}$	$\dfrac{8}{3} = 2\dfrac{2}{3}$	3	$\dfrac{10}{3} = 3\dfrac{1}{3}$	$\dfrac{11}{3} = 3\dfrac{2}{3}$	4	$\dfrac{13}{3} = 4\dfrac{1}{3}$	$\dfrac{14}{3} = 4\dfrac{2}{3}$	5	$\dfrac{16}{3} = 5\dfrac{1}{3}$

At $z = 12$, $z/3 = 4$

$Z = 12$ is the solution.

(d) Complete the table and find the solution to the equation m – 7 = 3

m	5	6	7	8	9	10	11	12	13
m− 7	...	...	...	...	...	...	...	...	...

Ans.

m	5	6	7	8	9	10	11	12	13
m− 7	−2	−1	0	1	2	3	4	5	6

At, m = 10, m – 7 = 3

m = 10 is the solution.

5. Solve the following riddles, you may yourself construct such riddles. Who am I?
(i) Go round a square counting every corner thrice and no more! Add the count to me to get exactly thirty four!

Ans.

Number of corners in a square = 4

Thrice the number of corners = $3 \times 4 = 12$

When 12 is added to a number it will become 34

$x + 12 = 34$

$x = 34 - 12 = 22$

Thus, the number is 22

(ii) For each day of the week Make an up count from me If you make no mistake You will get twenty three

Ans.

Number of days in a week $= 7$

Upcounting from the number x for 7 the sum $= 23$

$$x + 7 = 23$$

$$x = 23 - 7$$

$$x = 16$$

Thus, the number is 16

(iii) I am a special number Take away from me a six! A whole cricket team. You will still be able to fix!

Ans.

Let the special number $= x$

Number of players in a cricket team $= 11$

If 6 is taken from the special number $= x - 6 = 11$

$x = 11 + 6 = 17$

Thus, the number is 17

(iv) Tell me who I am I shall give a pretty clue! You will get me back if you take me out of twenty two!

Ans.

Let the number be $= x$

$$22 - x = x$$

$$\text{or} \quad 22 - 11 = 11$$

Thus, the number is 11

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