EXERCISE 11.1 PAGE NO: 226

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

(a) A pattern of letter T as

(b) A pattern of letter Z as

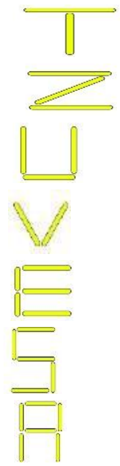
(c) A pattern of letter U as

(d) A pattern of letter Vas

(e) A pattern of letter E as

(f) A pattern of letter S as

(g) A pattern of letter A as



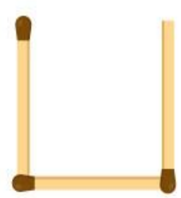
Solutions:

(a)

From the figure we observe that two matchsticks are required to make a letter T. Hence, the pattern is 2n (b)

From the figure we observe that three matchsticks are required to make a letter Z. Hence, the pattern is 3n

(c)

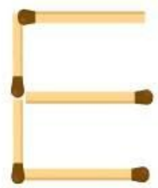


From the figure we observe that three matchsticks are required to make a letter U. Hence, the pattern is 3n

(d)

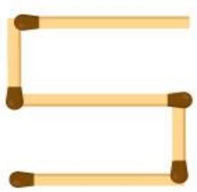
From the figure we observe that two matchsticks are required to make a letter V. Hence, the pattern is 2n

(e)



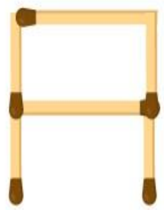
From the figure we observe that 5 matchsticks are required to make a letter E. Hence, the pattern is 5n

(f)



From the figure we observe that 5 matchsticks are required to make a letter S. Hence, the pattern is 5n

(g)



From the figure we observe that 6 matchsticks are required to make a letter A. Hence, the pattern is 6n

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?

Solutions:

We know that L require only two matchsticks. So, the pattern for letter L is 2n. Among all the letters given in question 1, only L and V are the letters which require two matchsticks. Hence, (a) and (d).

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) Solutions:

Let n be the number of rows
Number of cadets in a row = 5
Total number of cadets = number of cadets in a row × number of rows
= 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.) Solutions:

Let b be the number of boxes
Number of mangoes in a box = 50
Total number of mangoes = number of mangoes in a box × number of boxes
= 50b

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

Let s be the number of students
Pencils given to each student = 5
Total number of pencils = number of pencils given to each student × number of students = 5s

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

Let t minutes be the flying times
Distance covered in one minute = 1 km
Distance covered in t minutes = Distance covered in one minute × Flying time
= 1 × t
= t km

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?

Solutions:

Number of dots in a row = 9
Number of rows = r
Total number of dots in r rows = Number of dots in a row × number of rows
= 9r
Number of dots in 8 rows = 8 × 9
= 72
Number of dots in 10 rows = 10 × 9
= 90

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. Solutions:

Let Radha's age be x years
Leela's age = 4 years younger than Radha
= (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?

Solutions:

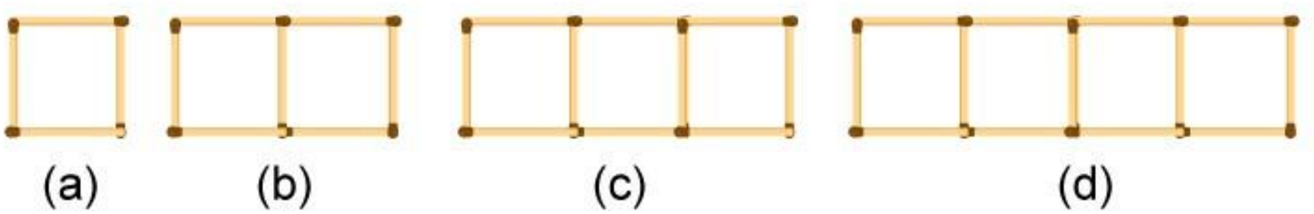
Number of laddus mother gave = l
Remaining laddus = 5
Total number of laddus = number of laddus given away by mother + number of laddus remaining
= (l + 5) laddus

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?

Solutions:

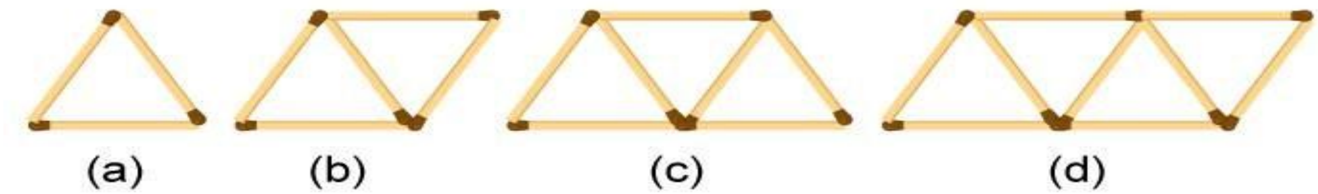
Number of oranges in a small box = x
Number of oranges in two small boxes = 2x
Number of oranges remained = 10
Number of oranges in large box = number of oranges in two small boxes + number of oranges remained
= 2x + 10

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 vertical stick at the end, you will get a pattern of Cs)

(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.



Solutions:

(a) We may observe that in the given matchstick pattern, the number of matchsticks are 4, 7, 10 and 13, which is 1 more than the thrice of the number of squares in the pattern

Therefore the pattern is 3x + 1, where x is the number of squares

(b) We may observe that in the given matchstick pattern, the number of matchsticks are 3, 5, 7 and 9 which is 1 more than the twice of the number of triangles in the pattern. Therefore the pattern is 2x + 1, where x is the number of triangles.

EXERCISE 11.2 PAGE NO: 230

1. The side of an equilateral triangle is shown by l. Express the perimeter of the equilateral triangle using l.

Solutions:

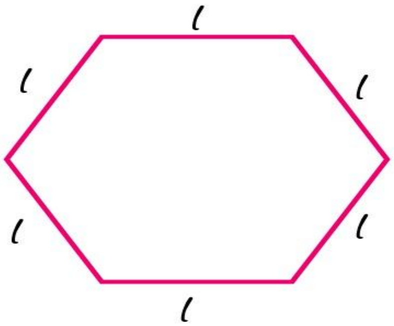
Side of equilateral triangle = l

Perimeter = l + l + l

= 3l

2. The side of the regular hexagon (Fig 11.10) is denoted by l. Express the perimeter of the hexagon using l.

(Hint: A regular hexagon has all its six sides equal in length.)



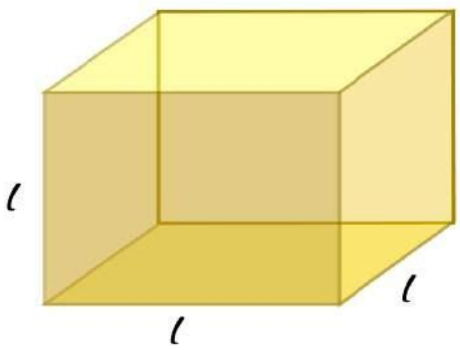
Solutions:

Side of a regular hexagon = l

Perimeter = l + l + l + l + l + 1

= 6l

3. A cube is three dimensional figure as shown in Fig 11.11. 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.



Solutions:

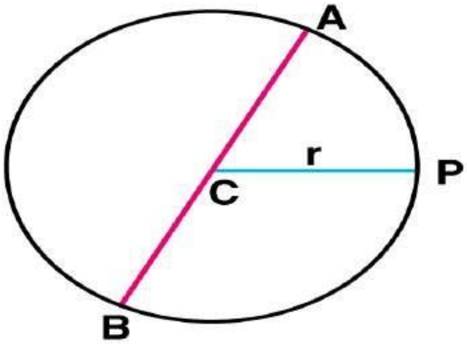
Length of an edge of the cube = l

Number of edges = 12

Total length of the edges = Number of edges × length of an edge

=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 (Fig 11.2) AB is a diameter of a circle; C is its centre.) Express the diameter of the circle (d) in terms of its radius (r).



Solutions:

Diameter = AB

= AC + CB

= r + r

= 2r

Hence, the diameter of the circle in terms of its radius is 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 41and then add 13 to it to get the total sum 54 or

(b) We may add 27 and 13 to get 40 and then add 14 to get the sum 54. Thus, (14 + 27) + 13 = 14 + (27 + 13)

Solutions:

For any three whole numbers a, b and c

(a + b) + c = a + (b + c)

EXERCISE 11.3 PAGE NO: 233

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.

Solutions:

Some of the expressions formed by 5, 7 and 8 are as follows

5 × (8 – 7)
5 × (8 + 7)
(8 + 5) × 7
(8 – 5) × 7
(7 + 5) × 8
(7 – 5) × 8

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

(a) y + 3
(b) (7 × 20) – 8z
(c) 5 (21 – 7) + 7 × 2
(d) 5
(e) 3x
(f) 5 – 5n
(g) (7 × 20) – (5 × 10) – 45 + p Solutions:

(c) and (d) are the expressions with numbers only.

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
(b) 17y, y / 17, 5z
(c) 2y + 17, 2y – 17 (
(d) 7m, -7m + 3, -7m – 3

Solutions:

(a) z + 1 = 1 is added to z = Addition z – 1 = 1 is subtracted from z = Subtraction y + 17 = 17 is added to y = Addition y – 17 = 17 is subtracted from y = Subtraction

(b) 17y = y is multiplied by 17 = Multiplication y / 17 = y is divided by 17 = Division 5z = z is multiplied by 5 = Multiplication

(c) 2y + 17 = y is multiplied by 2 and 17 is added to the result = Multiplication and addition 2y – 17 = y is multiplied by 2 and 17 is subtracted from the result = Multiplication and subtraction

(d) 7m = m is multiplied by 7 = multiplication
-7m + 3 = m is multiplied by -7 and 3 is added to the result = Multiplication and addition -7m – 3 = m is multiplied by -7 and 3 is subtracted from the result = Multiplication and subtraction

4. Give expressions for the following cases.
(a) 7 added to p
(b) 7 subtracted from p
(c) p multiplied by 7
(d) p divided by 7
(e) 7 subtracted from –m
(f) –p multiplied by 5
(g) –p divided by 5
(h) p multiplied by -5

Solutions:
(a) 7 is added to p is (p + 7)
(b) 7 subtracted from p is (p – 7)
(c) p multiplied by 7 is (7p)
(d) p divided by 7 is (p / 7)
(e) 7 subtracted from –m is (-m – 7)
(f) –p multiplied by 5 is (-5p)
(g) –p divided by 5 is (–p / 5)
(h) p multiplied by -5 is (-5p)

5. Give expressions in the following cases.
(a) 11 added to 2m
(b) 11 subtracted from 2m
(c) 5 times y to which 3 is added
(d) 5 times y from which 3 is subtracted
(e) y is multiplied by -8
(f) y is multiplied by -8 and then 5 is added to the result
(g) y is multiplied by 5 and the result is subtracted from 16
(h) y is multiplied by -5 and the result is added to 16.

Solutions:
(a) 11 added to 2m is (2m + 11)
(b) 11 subtracted from 2m is (2m – 11)
(c) 5 times y to which 3 is added is (5y + 3)
(d) 5 times y from which 3 is subtracted is (5y – 3)
(e) y is multiplied by -8 is (-8y)
(f) y is multiplied by -8 and then 5 is added to the result is (-8y + 5)
(g) y is multiplied by 5 and the result is subtracted from 16 is (16 – 5y) (h) y is multiplied by -5 and the result is added to 16 is (-5y + 16)

6. (a) Form expressions using t and 4. Use not more than one number operation. Every expression must have t in it.
(b) Form expressions using y, 2 and 7. Every expression must have y in it. Use only two number operations. These should be different.

Solutions:
(a) (t + 4), (t – 4), 4t, (t / 4), (4 / t), (4 – t), (4 + t) are the expressions using t and 4 (b)
2y + 7, 2y – 7, 7y + 2,…
are the expression using y, 2 and 7

EXERCISE 11.4 PAGE NO: 235

1. Answer the following:

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

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

(ii) What was her age 3 years back?

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

(iv) Grandmother is two year younger than grandfather. What is grandmother's age?

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

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

(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.

(d) Meena, Beena and Reena 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.

(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.

Solutions:

(a) (i) Sarita's age aftyer 5 years from now = Sarita's present age + 5

= (y + 5) years

(ii) Sarita's age 3 years back = Sarita's present age – 3 = (y – 3) years

(iii) Grandfather's age = 6 × Sarita's present age

= 6y years

(iv) Grandmother's age = granfather's present age – 2 = (6y -2) years

(v) Father's age = 5 + 3 × Sarita's present age

= (5 + 3y) years

(b) Length = 3 × Breadth – 4 l = (3b – 4) metres

(c) Length = 5 × Breadth
l = 5h cm
Breadth = 5 × length – 10
b = (5h – 10) cm

(d) The step at which Beena is = (step at which Meena is) + 8
= (s + 8)
The step at which Leena is = (step at which Meena is) – 7
= (s – 7)
Total steps = 4 × (step at which Meena is) – 10
= (4s – 10)

(e) Speed = v km / hr
Distance travelled in 5 hours = 5 × v
= 5v km
Total distance travelled between Daspur and 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
(b) Tony put q marbles on the table. He has 8 q marbles in his box.
(c) Our class has n students. The school has 20 n students.
(d) Jaggu is z years old. His uncle is 4z years old and his aunt is (4z – 3) years old.
(e) In an arrangement of dots there are r rows. Each row contains 5 dots

Solutions:
(a) A book costs 3 times the costs of a notebook.
(b) Tony's box contains 8 times the number of marbles on the table
(c) Total number of students in the school is 20 times that of our class
(d) Jaggu's uncle is 4 times older than Jaggu and Jaggu's aunt is 3 years younger than his uncle (e) The total number of dots is 5 times the number of rows

3. **(a) Given Munnu's age to be x years, can you guess what (x – 2) may show? Can you guess what (x + 4) may show? What (3x + 7) may show?**
(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, $y + 4\frac{1}{2}$, $y - 2\frac{1}{2}$
(c) Given n students in the class like football, what may 2n shows? What may n / 2 show?
Solutions:
(a) (x – 2) represents the person whose age is (x – 2) years and he is 2 years younger to Munnu

(x + 4) represents the person whose age is (x + 4) years and he is 4 years elder than Munnu

(3x + 7) represents the person whose age is (3x + 7) years, elder to Munnu and his age is 7 years more than the three times of the age of Munnu

(b) In Future

After n years since now, Sara's age will be (y + n) years

In past

n years ago, Sara's age was (y – n) years

(y + 7) represents the person whose age is (y + 7) years and is 7 years elder to Sara

(y – 3) represents the person whose age is (y – 3) years and is 3 years younger to Sara

$y+4\frac{1}{2}$ represents the person whose age is $y+4\frac{1}{2}$ years and is $4\frac{1}{2}$ years elder to Sara

$y-2\frac{1}{2}$ represents the person whose age is $y-2\frac{1}{2}$ years and is $2\frac{1}{2}$ years younger to Sara

(c) 2n shows the number of students who like either football or some other game like tennis whereas n / 2 shows the number of students who like tennis out of the total number of students who like football.

EXERCISE 11.5 PAGE NO: 240

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) $17 = x + 17$
(b) $(t - 7) > 5$
(c) $4 / 2 = 2$
(d) $(7 \times 3) - 19 = 8$
(e) $5 \times 4 - 8 = 2x$
(f) $x - 2 = 0$ (g) $2m < 30$
(h) $2n + 1 = 11$
(i) $7 = (11 \times 5) - (12 \times 4)$
(j) $7 = (11 \times 2) + p$
(k) $20 = 5y$
(l) $3q/ 2 < 5$
(m) $z + 12 > 24$
(n) $20 - (10 - 5) = 3 \times 5$
(o) $7 - x = 5$

Solutions:
(a) An equation with variable x
(b) An inequality equation
(c) No, it's a numerical equation
(d) No, it's a numerical equation
(e) An equation with variable x
(f) An equation with variable x
(g) An inequality equation
(h) An equation with variable n
(i) No, it's a numerical equation
(j) An equation with variable p
(k) An equation with variable y
(l) An inequality equation
(m) An inequality equation
(n) No, it's a numerical equation
(o) 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	

Solutions: (a)

10y = 80

y = 10 is not a solution for this equation because if y = 10,

10y = 10 × 10

= 100 and not 80

(b) 10y = 80

y = 8 is a solution for this equation because if y = 8,

10y = 10 × 8

= 80

∴ Equation satisfied (c)

10y = 80

y = 5 is not a solution for this equation because if y = 5,

10y = 10 × 5

= 50 and not 80

(d) 4l = 20

l = 20 is not a solution for this equation because if l = 20,

4l = 4 × 20

= 80 and not 20

(e) 4l = 20

l = 80 is not a solution for this equation because if l = 80,

4l = 4 × 80

= 320 and 20

(f) 4l = 20

l = 5 is a solution for this eqaution because if l = 5,

4l = 4 × 5

= 20

∴ Equation satisfied (g)

b + 5 = 9

b = 5 is not a solution for this equation because if b =

5, b + 5 = 5 + 5 = 10 and not 9

(h) b + 5 = 9

b = 9 is not a solution for this equation because if

b = 9, b + 5 = 9 + 5

= 14 and not 9

(i) b + 5 = 9

b = 4 is a solution for this equation because if b = 4, b + 5 = 4 + 5

= 9

∴ Equation satisfied

(j) h – 8 = 5

h = 13 is a solution for this equation because if h = 13,

h – 8 = 13 – 8

= 5

∴ Equation satisfied

(k) h – 8 = 5

h = 8 is not a solution for this equation because if h = 8,

h – 8 = 8 – 8

= 0 and not 5

(l) h – 8 = 5

h = 0 is not a solution for this equation because if h = 0,

h – 8 = 0 – 8

= - 8 and not 5

(m) p + 3 = 1

p = 3 is not a solution for this equation because if

p = 3, p + 3 = 3 + 3

= 6 and not 1

(n) p + 3 = 1

p = 1 is not a solution for this equation because if

p = 1, p + 3 = 1 + 3 = 4 and not 1

(o) p + 3 = 1

p = 0 is not a solution for this equation because if

p = 0, p + 3 = 0 + 3

= 3 and not 1

(p) p + 3 = 1 p = -1 is not a solution for this equation because
if p = - 1, p + 3 = -1 + 3
= 2 and not 1

(q) p + 3 = 1
p = -2 is a solution for this equation because if p
= -2, p + 3 = -2 + 3
= 1

∴ Equation satisfied

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

(a) 5m = 60 **(10, 5, 12, 15)**
(b) n + 12 **(12, 8, 20, 0)**
(c) p – 5 = 5 **(0, 10, 5 – 5)**
(d) q / 2 = 7 **(7, 2, 10, 14)**
(e) r – 4 = 0 **(4, -4, 8, 0)**
(f) x + 4 = 2 **(-2, 0, 2, 4)**

Solutions:

(a) 5m = 60
m = 12 is a solution for this equation because for m = 12,
5m = 5 × 12
= 60

∴ Equation satisfied

m = 10 is not a solution for this equation because for m = 10,
5m = 5 × 10
= 50 and not 60

m = 5 is not a solution for this equation because for m = 5,
5m = 5 × 5
= 25 and not 60

m = 15 is not a solution for this equation because for m = 15,
5m = 5 × 15
= 75 and not 60

(b) n + 12 = 20
n = 8 is a solution for this equation because for n = 8,
n + 12 = 8 + 12
= 20

∴ Equation satisfied

n = 12 is not a solution for this equation because for n = 12,

n + 12 = 12 + 12
= 24 and not 20

n = 20 is not a solution for this equation because for n = 20,
n + 12 = 20 + 12
= 32 and not 20

n = 0 is not a solution for this equation because for n = 0,
n + 12 = 0 + 12
= 12 and not 20

(c) p – 5 = 5
p = 10 is a solution for this equation because for p = 10,
p – 5 = 10 – 5
= 5
∴ Equation satisfied

p = 0 is not a solution for this equation because for p = 0,
p – 5 = 0 – 5 = -5 and not 5

p = 5 is not a solution for this equation because for p = 5,
p – 5 = 5 – 5 = 0 and not 5

p = -5 is not a solution for this equation because for p = -5, p – 5 = -5 – 5
= - 10 and not 5

(d) q / 2 = 7
q = 14 is a solution for this equation because for q = 14,
q / 2 = 14 / 2
= 7
∴ Equation satisfied

q = 7 is not a solution for this equation because for q = 7,
q / 2 = 7 / 2 and not 7

q = 2 is not a solution for this equation because for q = 2,
q / 2 = 2 / 2
= 1 and not 7

q = 10 is not a solution for this equation because for q = 10,
q / 2 = 10 / 2
= 5 and not 7

(e) r – 4 = 0

r = 4 is a solution for this equation because for r = 4,

r – 4 = 4 – 4

= 0

∴ Equation satisfied

r = -4 is not a solution for this equation because for r = - 4,

r – 4 = - 4 – 4

= -8 and not 0

r = 8 is not a solution for this equation because for r = 8,

r – 4 = 8 – 4

= 4 and not 0

r = 0 is not a solution for this equation because for r = 0,

r – 4 = 0 – 4

= - 4 and not 0

(f) x + 4 = 2

x = -2 is a solution for this equation because for x = -2,

x + 4 = - 2 + 4

= 2

∴ Equation satisfied

x = 0 is not solution for this equation because for x = 0,

x + 4 = 0 + 4 = 4 and not 2

x = 2 is not a solution for this equation because for x = 2,

x + 4 = 2 + 4

= 6 and not 2

x = 4 is not a solution for this equation because for x = 4,

x + 4 = 4 + 4 = 8 and not 2

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	--	--	--	--	--	--	--	--	--	--	--	--	--

(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	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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

z	8	9	10	11	12	13	14	15	16	--	--
z / 3	$2\frac{2}{3}$	3	$3\frac{1}{3}$	--	--	--	--	--	--	--	--

(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	--	--	--	--	--	--	--	--	--	--	--

Solutions:

(a) For m + 10, the table is represented as below

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

Now, by inspection we may conclude that m = 6 is the solution of the above equation since, for m = 6, m + 10 = 6 + 10 = 16

(b) For 5t, the table is represented as below

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

Now, by inspection we may conclude that t = 7 is the solution of the above equation since, for t = 7,
5t = 5 × 7 = 35

(c) For z / 3, the table is represented as below

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

Now, by inspection we may conclude that z = 12 is the solution of the above equation since for z = 12, z / 3 = 4

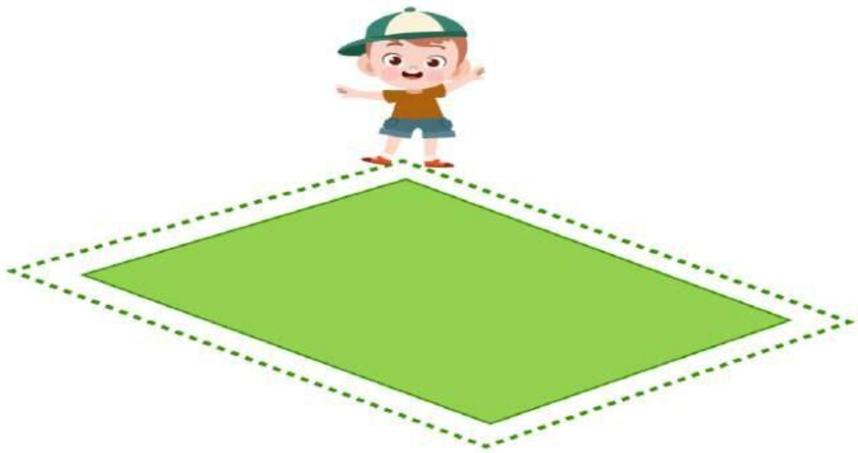
(d) For m – 7, the table is represented as below

m	m – 7
5	5 – 7 = -2
6	6 – 7 = -1
7	7 – 7 = 0
8	8 – 7 = 1
9	9 – 7 = 2
10	10 – 7 = 3
11	11 – 7 = 4
12	12 – 7 = 5
13	13 – 7 = 6

Now, by inspection we may conclude that m = 10 is the solution of the above equation since, for m = 10, m – 7 = 10 – 7 = 3

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!

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

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

(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!

Solutions:

(i) There are 4 corners in a square.

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

When 12 is added to the number it becomes 34

So, the number will be the difference of 34 and 12

$34 – 12 = 22$

(ii) The result was 23 when the old number was up counted on Sunday
The result was 22 when the old number was up counted on Saturday
The result was 21 when the old number was up counted on Friday
The result was 20 when the old number was up counted on Thursday
The result was 19 when the old number was up counted on Wednesday
The result was 18 when the old number was up counted on Tuesday
The result was 17 when the old number was up counted on Monday
`Hence, the number taken at starting was 17 – 1 = 16

(iii) There are 11 players in a cricket team
If 6 is subtracted from a required number it will be 11
11 + 6 = 17
Hence, the number is 17

(iv) The required number is such that if it is subtracted from 22 the result is the number itself.
The number is 11 because if it is subtracted from 22 the result will be 11 only.