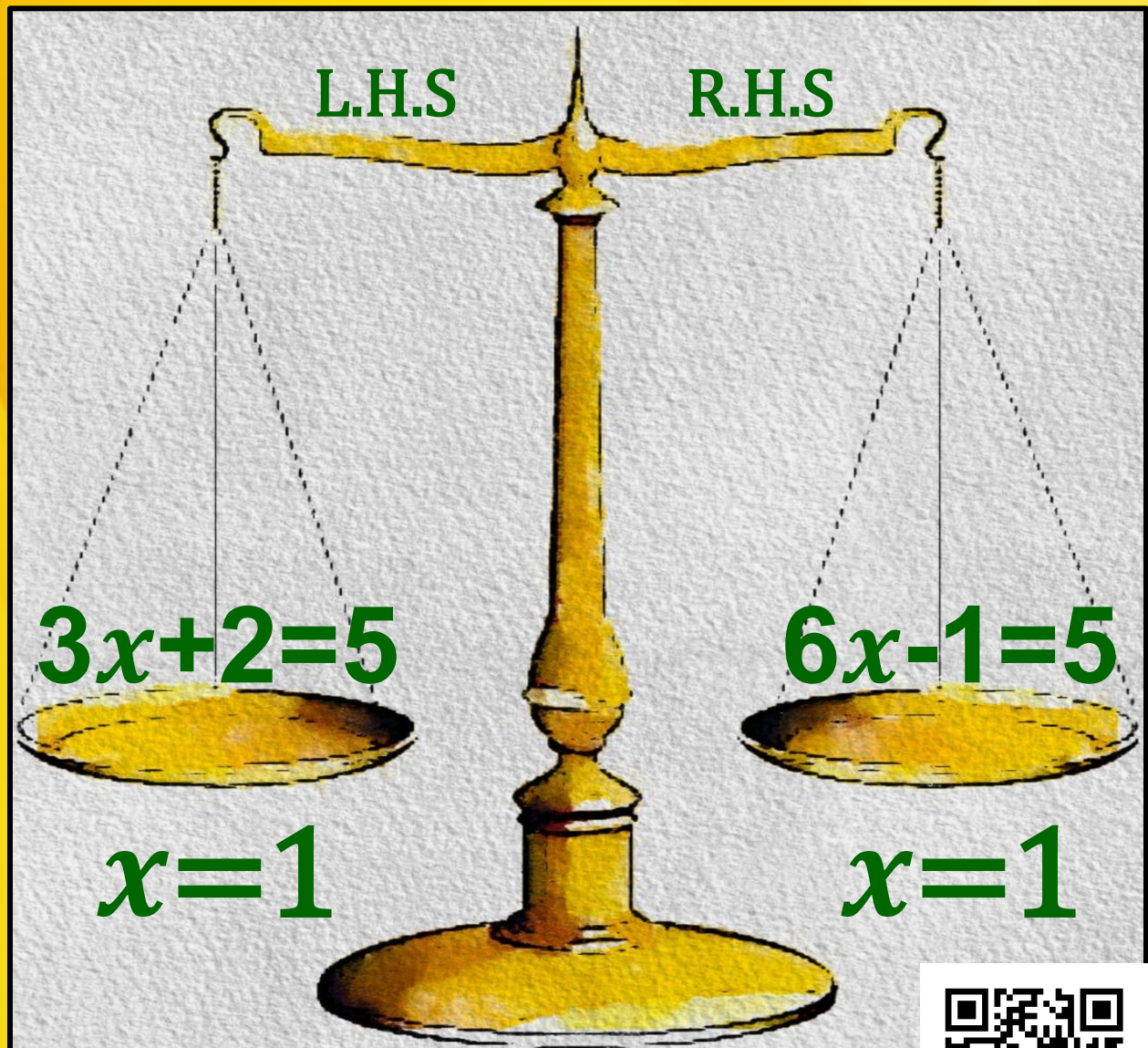


Graphic Novel: Mathematics

Class : VIII

Topic: Linear Equations



To access the comic book and additional interactive digital content, download DIKSHA app from Google Play Store on your Android Smart phone or Tablet.



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THE PREFACE

This Graphic Novel is a determined attempt to elucidate the concept of Linear Equations to the students. The illustrations have been designed keeping the target learners in mind.

It is our attempt to enrich and enliven the teaching of Linear Equations. This book is substantially different from the books as particular effort has been made to illustrate each point with significant examples from day to day situations. More importantly, a discussion of various rules of solving a linear equation has been shown with lucidly through the story.

It can be believed that we have succeeded for one simple reason: linear equation is tightly integrated into every portion of this novel with numerical capabilities to tackle problems that are well beyond the typical mundane examples of textbooks. As an additional benefit, it will improve students' understanding of important elements of the traditional syllabus.

The coverage of one of the vicious social evils, the Dowry System in the story will show a tentative list of factors like lack of education, conservative thinking, illiteracy and ignorance that are responsible for this evil to be flourishing in our society at an unprecedented rate.

The story also showcases how a small child with his good values and morals awakens the conscience of people demanding for a dowry and educates them to be fair in their code of conduct. In a nutshell, this novel is special because it will help the students obtain decision making and critical thinking along with the intended numerical skills.

LEARNING OUTCOMES

To enable students to:

- **set up an equation for given statement and vice versa.**
- **write the given equations in their reducible linear form and solve them.**
- **get aware of the techniques of finding the solution of an equation.**
- **solve word problems based on linear equations.**
- **verify the result obtained.**
- **apply simple equation to solve daily life problem situations.**

STORY BOARD

LINEAR EQUATIONS

$$\text{L.H.S} = \text{R.H.S}$$

RULES

Addition

Subtraction

Multiplication

Division

Cross-
multiplication

Transposition

APPLICATIONS

Word Problems based on

Numbers

Money

Age

Ratio &
Proportion

Mensuration

Combination
of Currency
notes.

CHARACTERS



Ajay

A self-driven , charismatic, smart boy of thirteen.

Manyata: Ajay's Mother

A responsible woman in her late thirties.



Riya : Ajay's Sister

A docile and young girl.



Greengrocer

A diligent old man in dhoti kurta.



Grandfather

A man of vast experience and wisdom, takes delight in little things.



Grandmother

An easy-going traditional woman.



Mr. Ahmed : Math Teacher

An impeccable and meritorious teacher who is greatly dedicated to his work.



Ms. Neha: Math Teacher

A critical thinker, problem solver, owner of an optimistic persona in her forties.



Mr. Batliwala: Amul Dairy owner

A conscientious and exemplary businessman.



Lata :

An innocent domestic help.



Vishwas :

A gluttonous and voracious man who fell in the trap of greed.



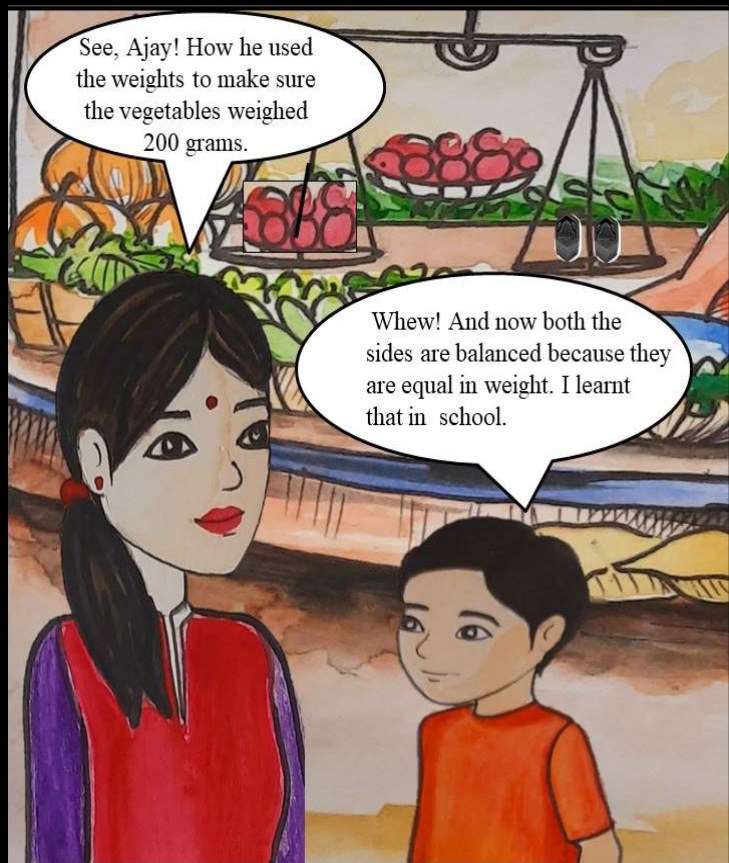
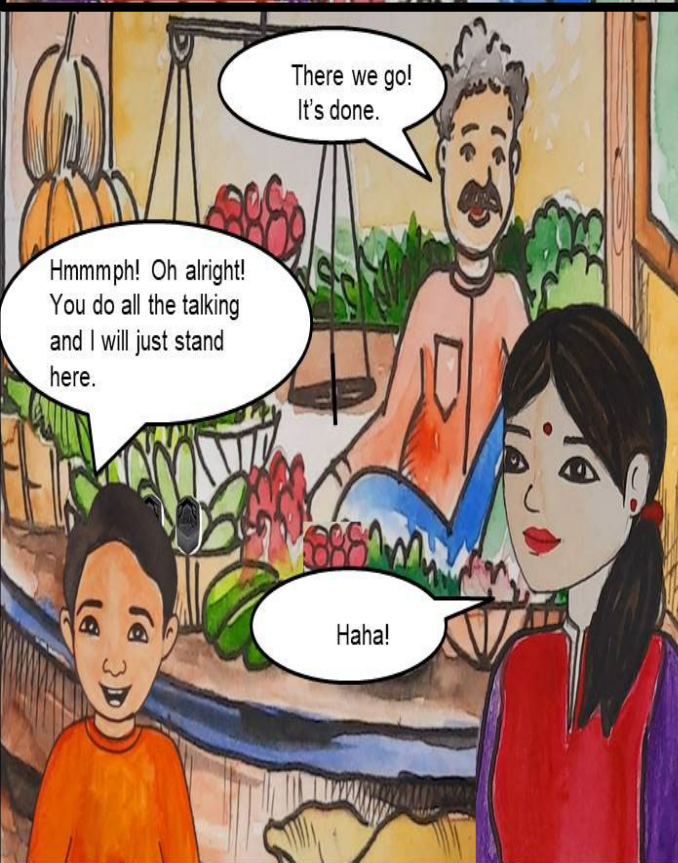
Ajay's peer group.



A market place;

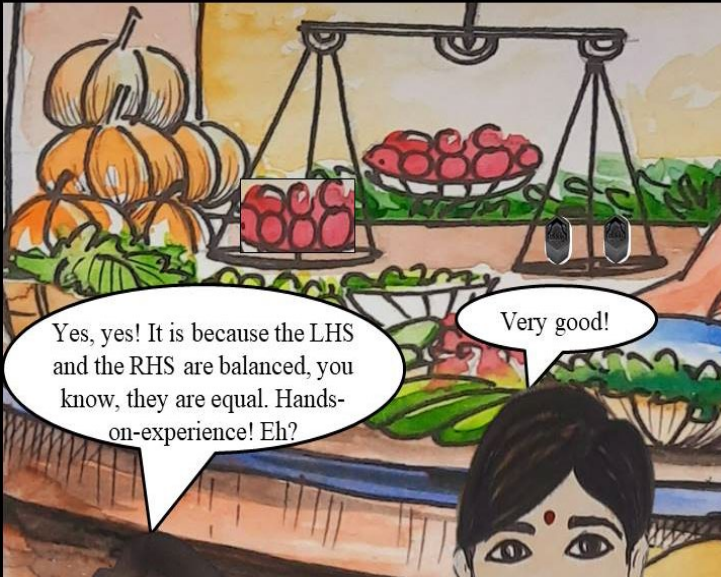
A boy named Ajay and his mother visit the local sabzi mandi to buy fresh fruits and veggies .







Excellent! Can you now say that an equation has been formed, Einstein?



Yes, yes! It is because the LHS and the RHS are balanced, you know, they are equal. Hands-on-experience! Eh?

Very good!

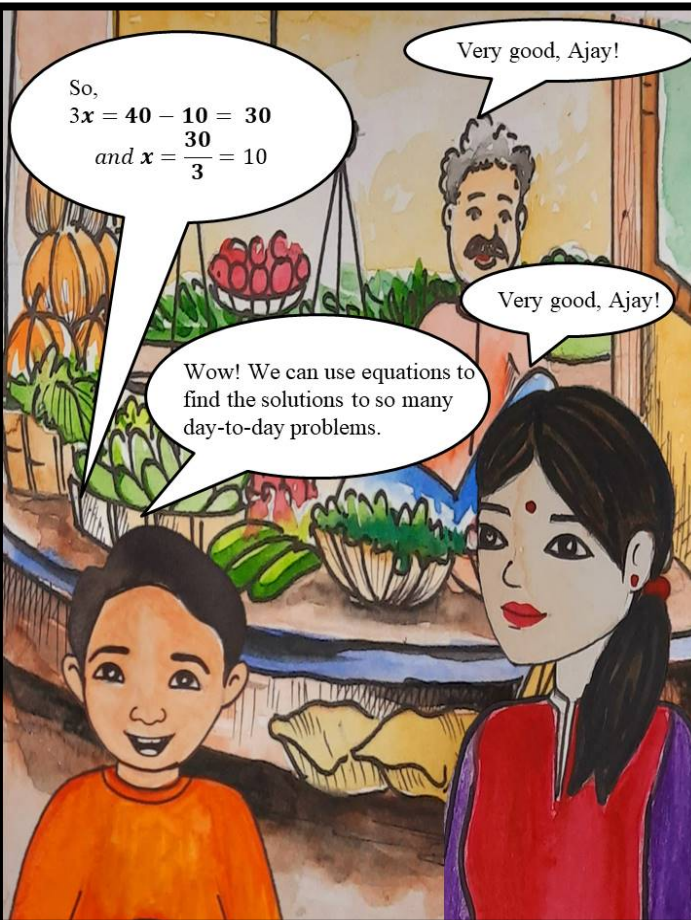
Solve this.

The price of 1 kg tomato is ₹ 10 more than thrice the price of 1 kg potato. If the price of 1 kg tomato is ₹ 40, find the price of 1kg potato.

Let's see. Let the price of 1 kg potato be x .

Then price of 1 kg tomato would be $3x + 10$.

So, $3x + 10 = 40$





Let's recall

LEARNING CHECK 1

- A linear equation is an equation whose degree is one.
- Degree is the highest exponent or power of the variable/s involved in the equation.
- The value of the variable that satisfies the given equation is called the solution or root .

Test your knowledge:

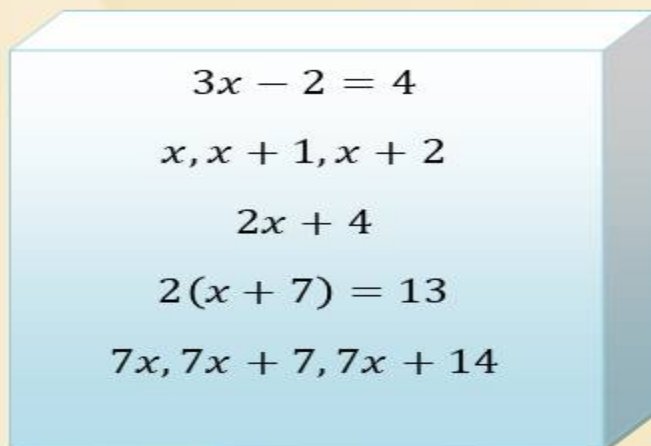
(A) Choose the linear equations from the following and write them down on the note pad seen in the picture alongside.



1. $3x - 42 = 3$
2. $5 - 2x^2 + 7 = 54$
3. $\frac{2}{3}y - 6 = \frac{1}{3}y + 9$
4. $-4p^3 + 2p - 7 = 3$
5. $150z + 100z + (250 - 80z) = 590$

(B) Pick the correct answer from the box and fill in the blanks.

1. Two times a number x added to 4 : _____
2. Three consecutive positive integers : _____
3. Two times the sum of number x and 7 is 13: _____
4. Three consecutive multiples of 7 : _____
5. Three times a number decreased by 2 is 4 : _____



After reaching home, Ajay is playing carrom with his grand father....



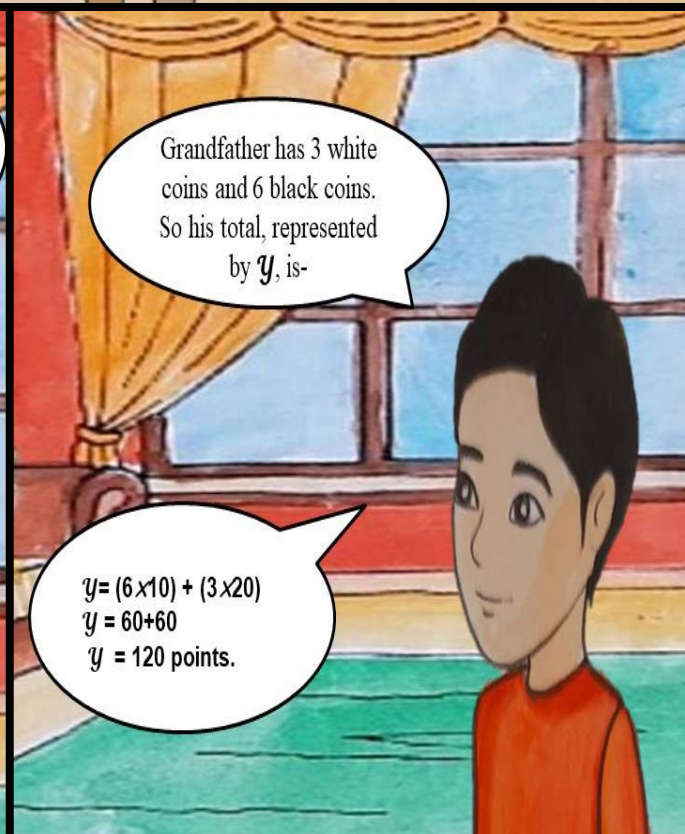
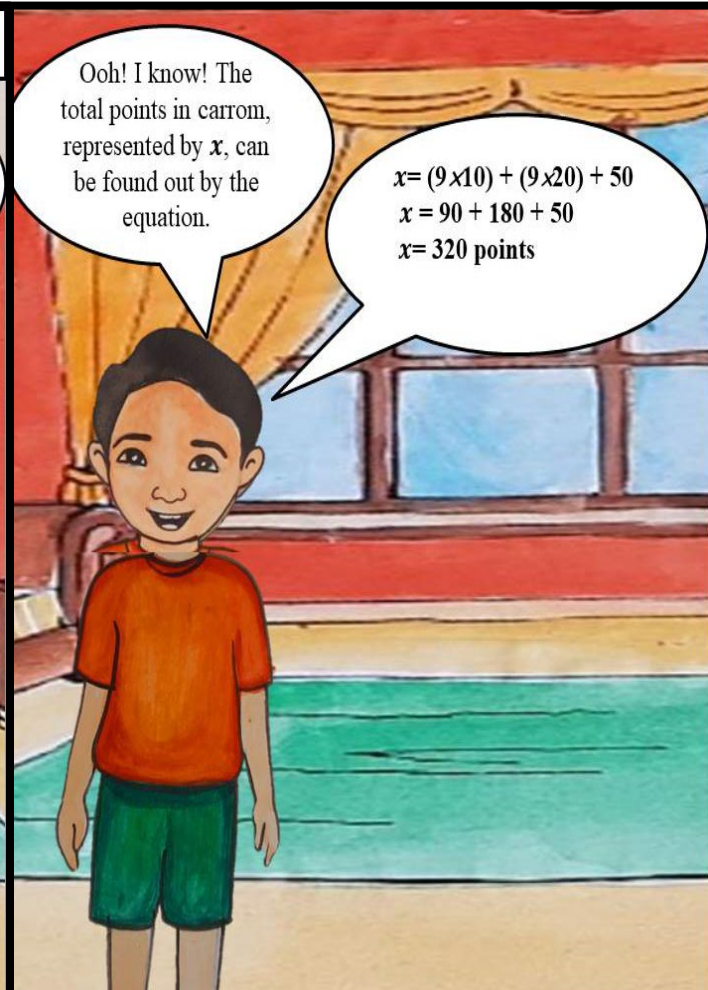
In his excitement, some carrom coins that Ajay had collected, slip from his hands.



He fails to stop the coins and they roll out of sight.



Riya takes out a pen and paper and starts writing.



And now, my points, represented by z can be found out by-

$$z = \text{Total points} - \text{Grandpa's points}$$
$$z = 320 - 120$$
$$z = 200 \text{ points}$$


Ok! Ok! Ajay, don't bring the roof off this place. Anyways, Grandpa has let you win on purpose.

Yeah! See mother! I won by 80 points! I WON again!



Oh! Did you Grandpa?

Eh? Oh yes, yes. Totally! You know, I was the champion of Carrom at college. They used to call me 'The King of the Carrom Queen' at college.



Ajay and Riya together exclaimed, Ajay admiringly, Riya incredulously.

Really?

Really?



Oh, yes, yes!

How wonderful, Grandpa!

Huh!



LEARNING CHECK 2

Let's recall... Any term of an equation may be shifted to the other side with a change in its sign without affecting the equality. This process is called **TRANSPOSITION**.



For Example:

$$10x - 7 = 8x + 13$$

$$\Rightarrow 10x - 8x = 13 + 7$$

$$\Rightarrow 2x = 20$$

$$\Rightarrow x = \frac{20}{2}$$

$$\Rightarrow x = 10$$

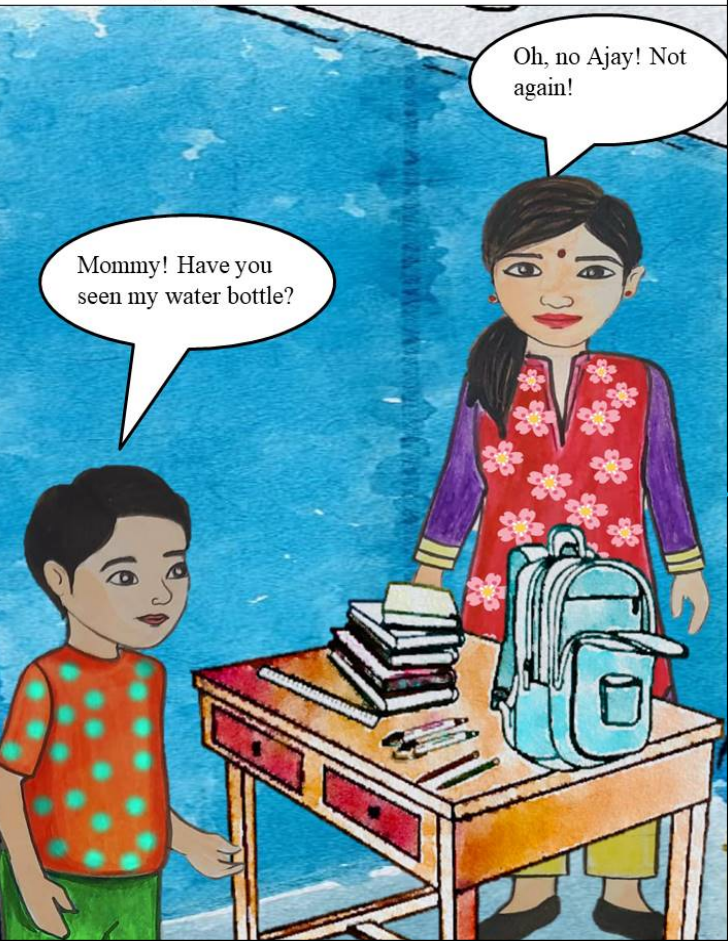
Note:

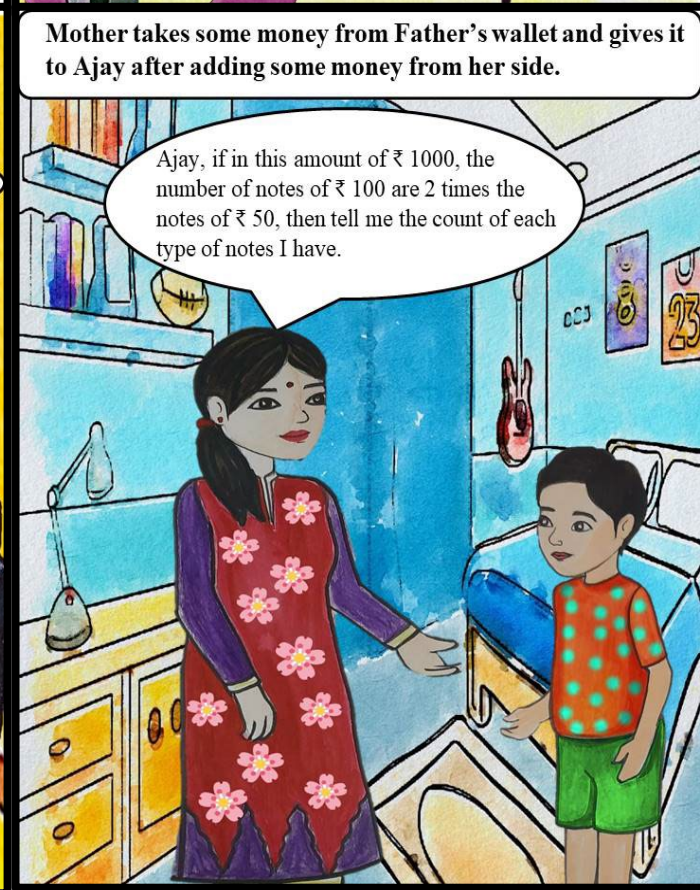
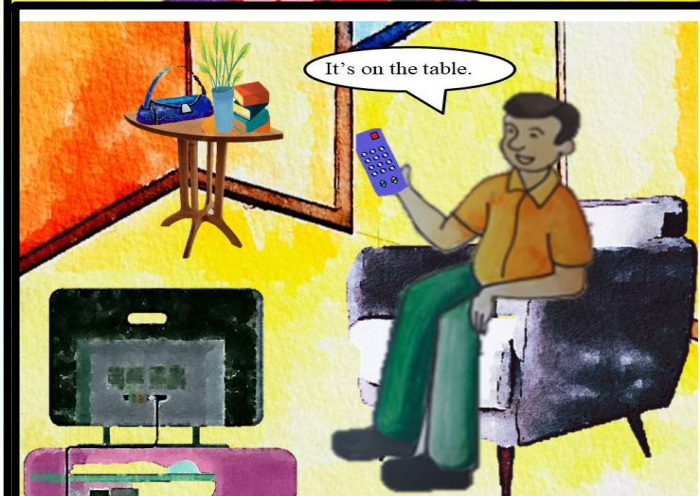
+ changes to -
- changes to +
× changes to ÷
÷ changes to ×

Try these:

1. For the equation $4x - 2 = 10$, the value of x is?
2. If $5p = -15 + 6p$, then $p = ?$
3. The solution of the equation $2(2x + 3) = 3x + 7$ is?
4. For the equation $5(y + 3) = 55$, the value of y is?

Ajay is packing his bag for the school trip the next day. His mother is helping him.





Let the number of notes of ₹50 be y .

Then, number of ₹100 notes will be $2y$.

Therefore, amount from ₹50 notes = $50y$

And, amount from ₹100 notes =

$$100 \times 2y = 200y$$

Thus, total amount =

$$50y + 200y = 1000$$

$$\therefore 250y = 1000$$

$$\therefore y = 4$$

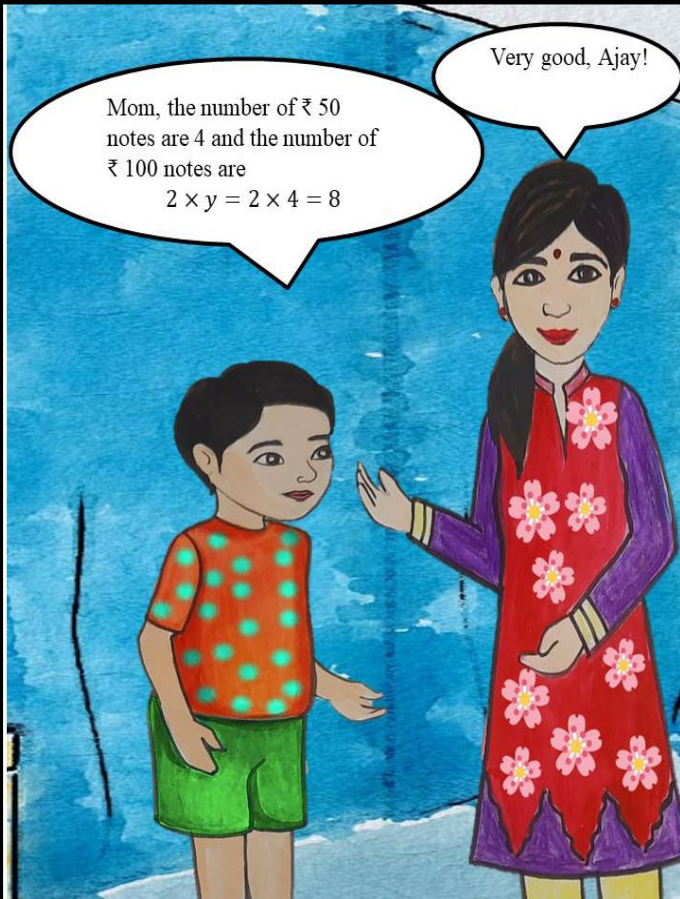
Wow! A real puzzler!



Mohit shouts.....



Everyone is startled with Father's reaction, who does not know about the ongoing conversation in the room, as his eyes are glued to the TV.



Father, strangely pleased, walks up to them and speaks.

So, what's going on?

I am packing for my school trip tomorrow.

You have a school trip tomorrow, ah ha!

You forgot Pa. I told you about that just fifteen minutes ago, didn't I?

Ah! Yes, yes! Well! I better get going for that match of cards I promised my Dad. It seems like years since we played cards, indeed!

That was yesterday, Dad!

Is anyone joining us?

Weee!

Weee!

LEARNING CHECK 3



It is so easy to solve linear equations by cross multiplication method. Just follow the steps given below:

Key Points:

- Solution of Linear equation by cross multiplication method

For example: $\frac{5x+1}{6x+2} = \frac{3}{4}$

- Write the expressions in brackets.

$$\frac{(5x+1)}{(6x+2)} = \frac{3}{4}$$

- Cross multiply the numerator of the L.H.S with the denominator of R.H.S and the denominator of the L.H.S with the numerator of R.H.S.

$$4(5x + 1) = 3(6x + 2)$$

- Simplify the LHS and RHS separately.

$$20x + 4 = 18x + 6$$

- Transpose the variables to LHS and constants to RHS

$$20x - 18x = 6 - 4$$

$$2x = 2$$

$$x = 1$$

- Try this:

Solve for m :

$$\frac{m-3}{2m} = \frac{2}{5}$$

The next morning, Ajay and his friends are ready to board the school bus for a visit to the Amul dairy plant. The children are making a hullabaloo.



It will be so cool to actually see how they process milk, won't it?

Yeah! Our Science teacher told us that they use centrifugation to separate the cream from the milk.



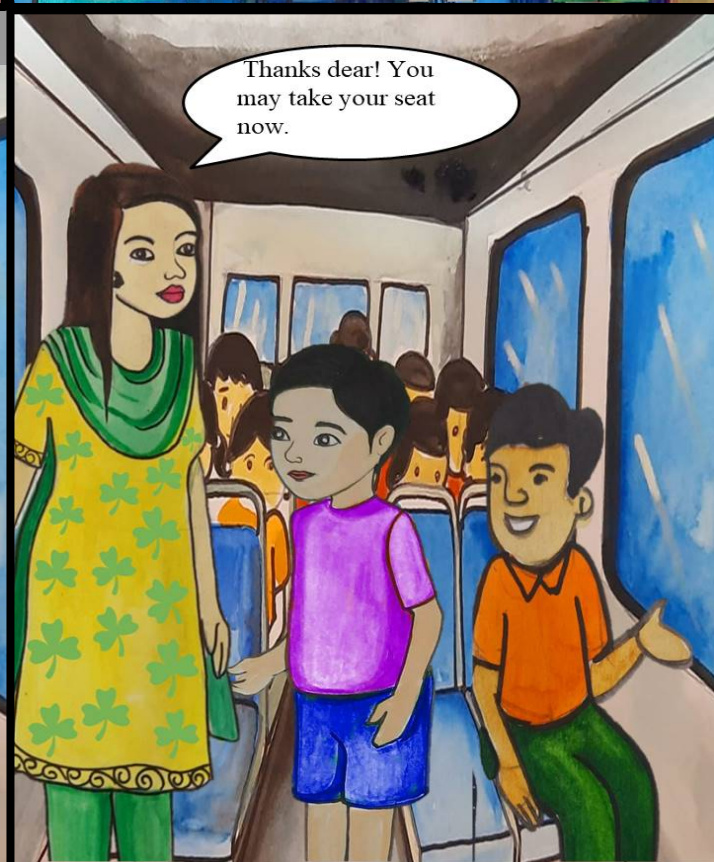
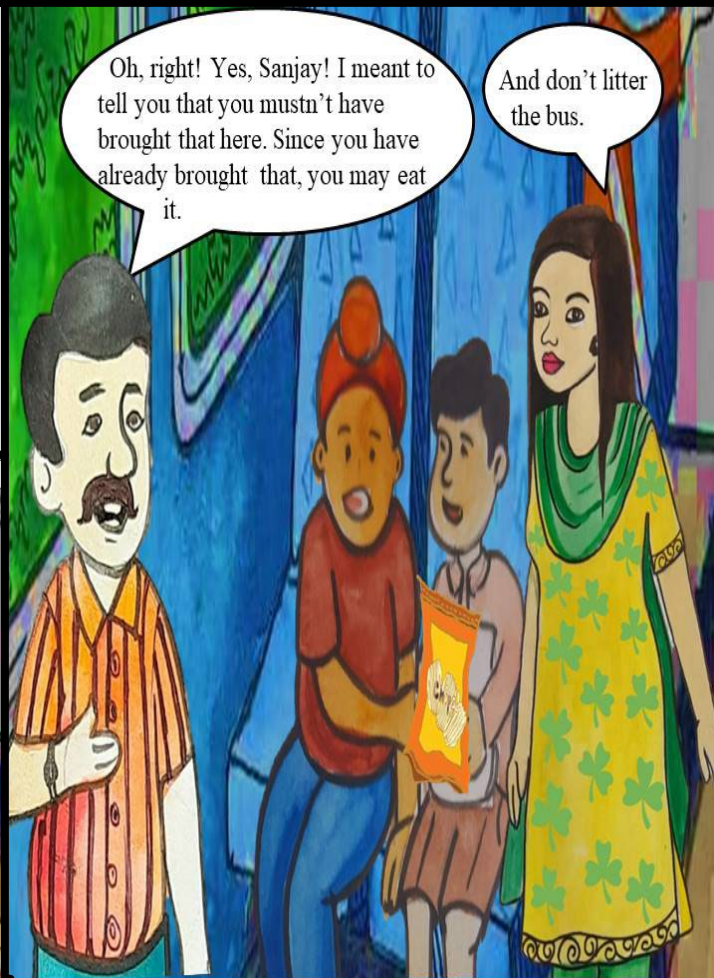
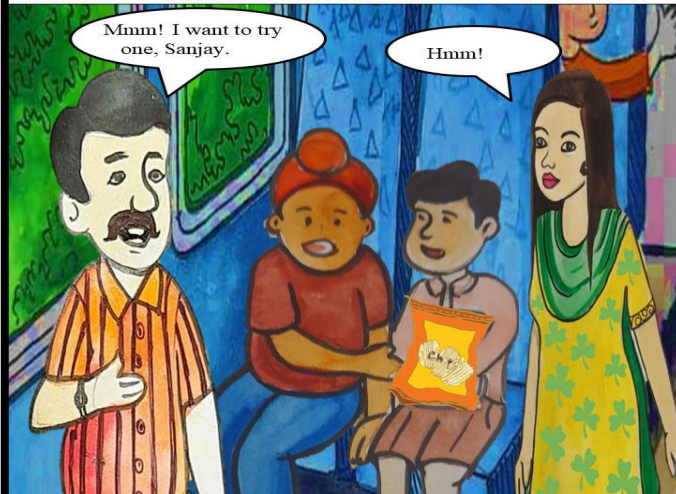
And I can't wait to see their ice-cream making unit.

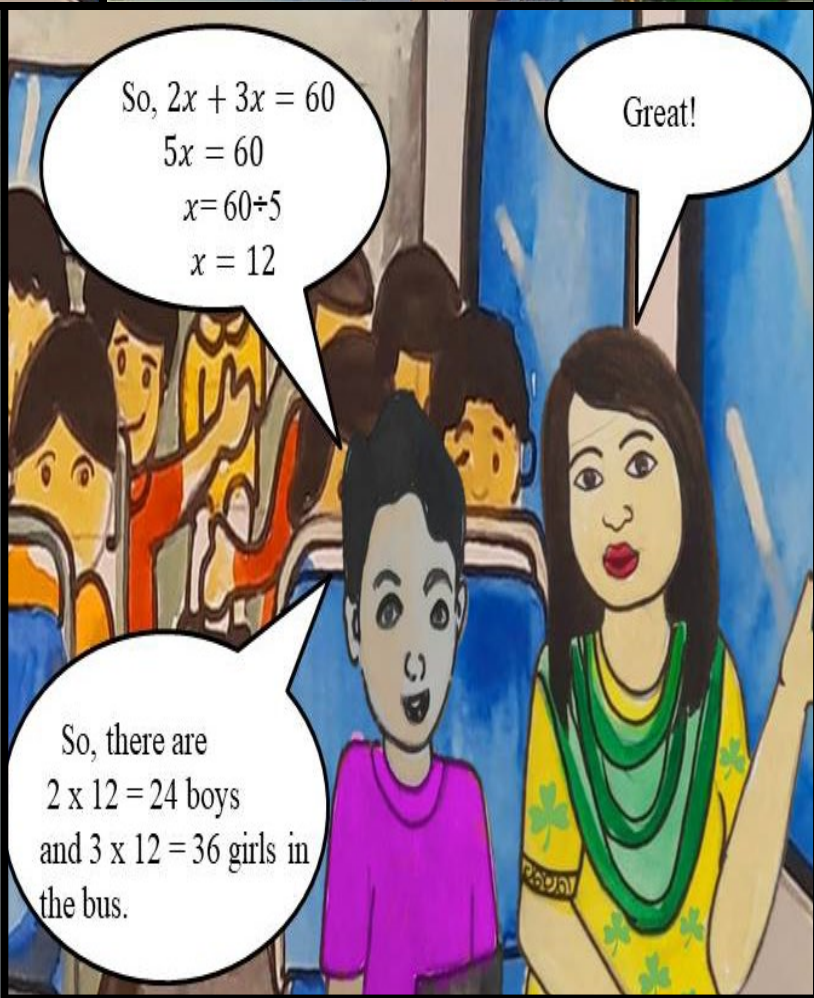
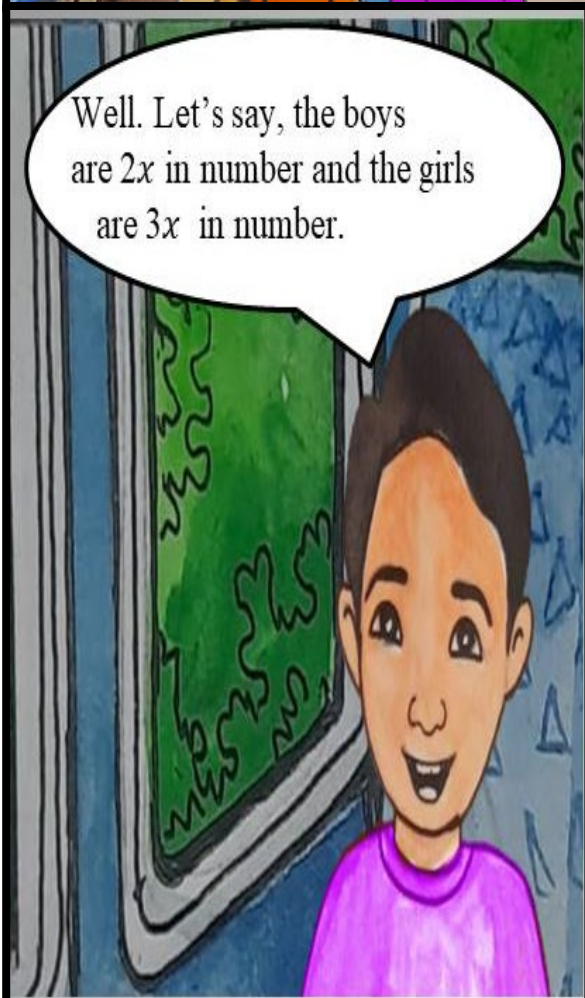
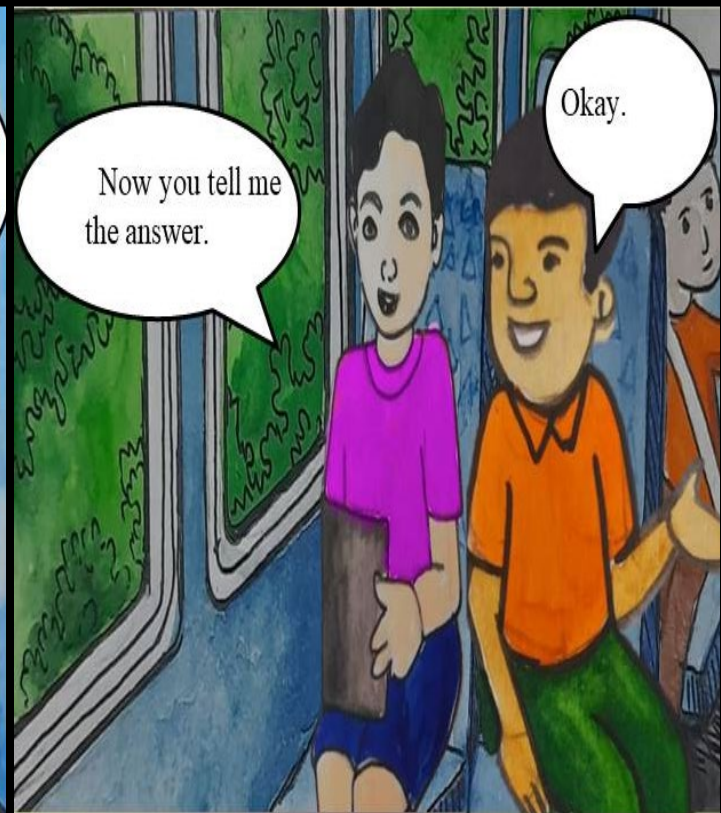


Yes! Yes! Will they provide us with a sample to taste? Just a small one!



Sanjay pulls out a packet of chips.





LEARNING CHECK 4



Hey Muthu! I have currencies of 2 different countries, Libya and USA.

Ok! Then solve the following puzzle

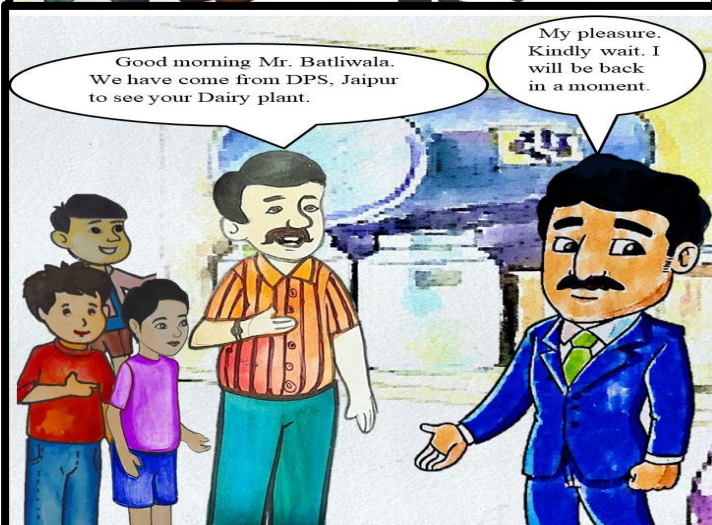
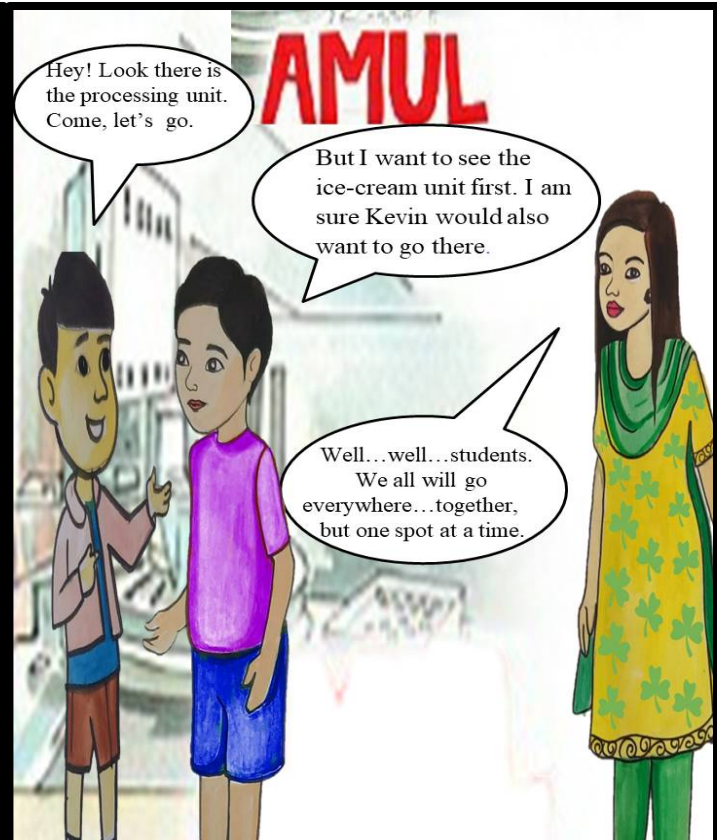
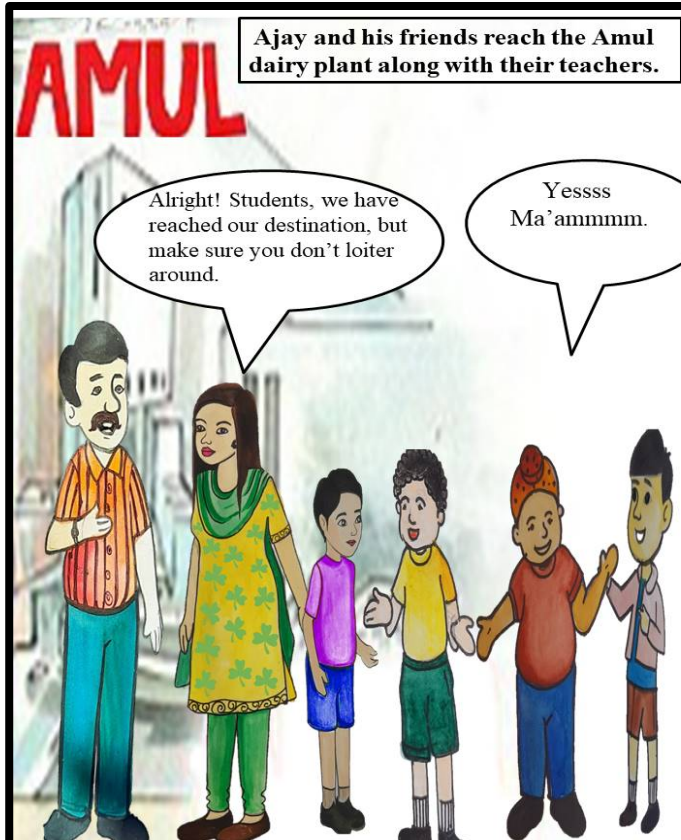


- Suppose the number of Libyan Dinar and Dollar notes in all is 30. If the number of Libyan Dinar notes is 5 times the number of Dollar notes, then find the value of money in Indian Rupees.

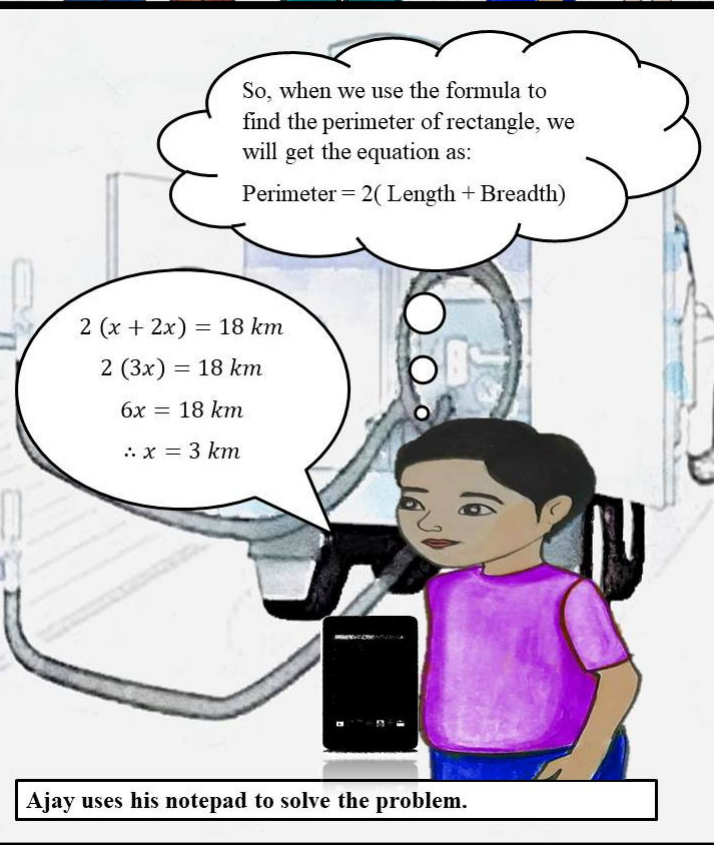
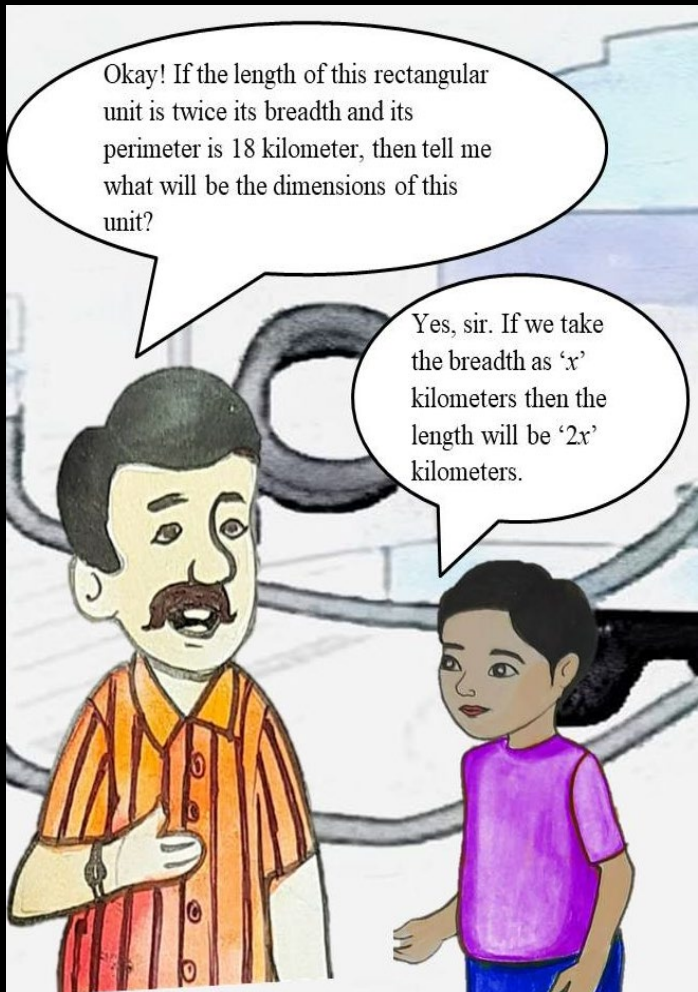
(Worth of one Dollar note in Indian Rupees is ₹70 and worth of one Libyan Dinar in Indian Rupees is ₹50 approximately).

Let the number of Dollar notes be ' x '

- Then number of Dinar notes will be ____.
- Hence total number of notes = ____.
- So equation formed will be ____.
- Thus the value of x = ____.
- Therefore number of Dollar notes = ____.
- And number of Dinar notes = ____.
- Then total worth of Dollar notes in Indian Rupees = ____.
- And total worth of Dinar notes in Indian Rupees = ____.
- Hence total amount in Indian Rupees = ____.

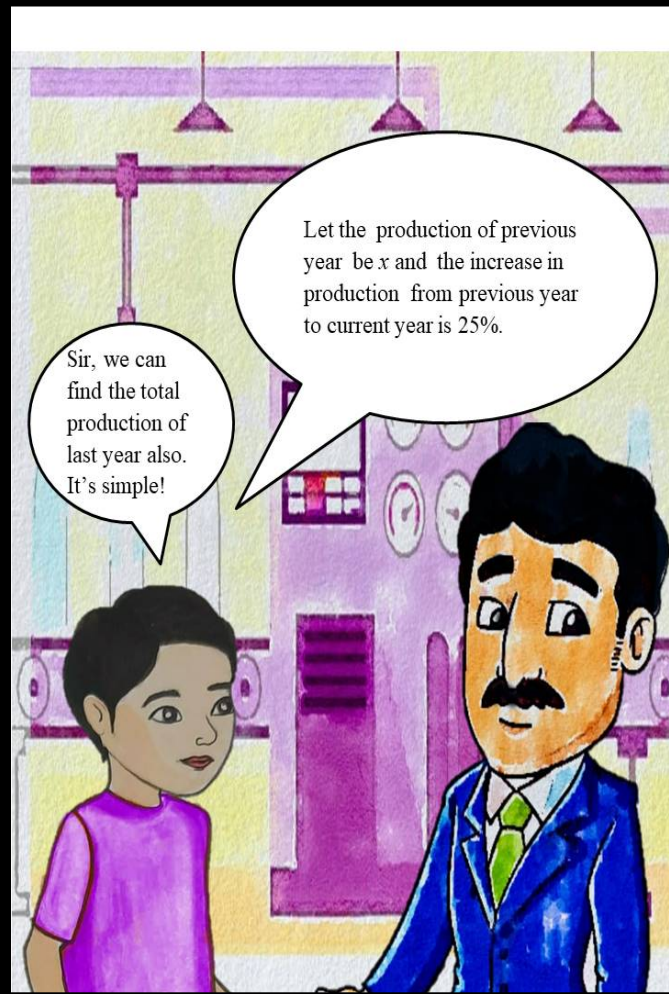


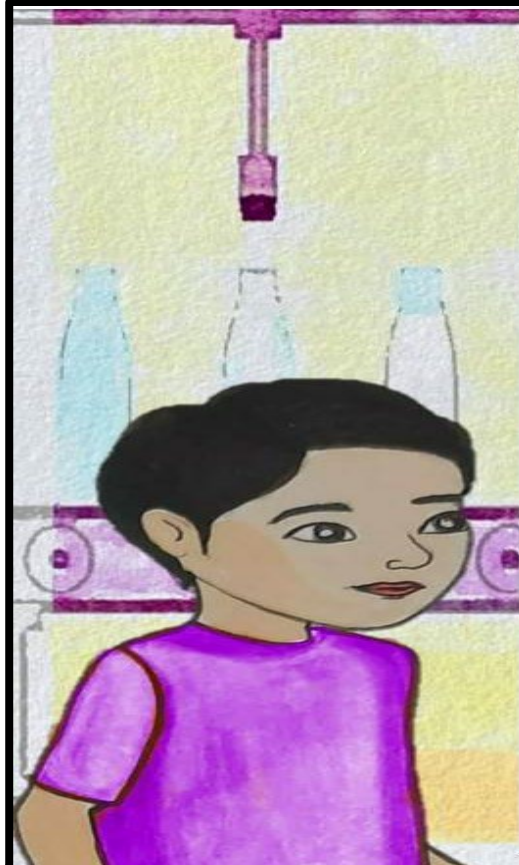
Ajay tries to sneak out from theremeanwhile Ahmed Sir speaks.





All of them stand and fix their gaze on the huge machine from a distance.





Then,

$$x + \frac{25x}{100} = 1,00,00,000$$

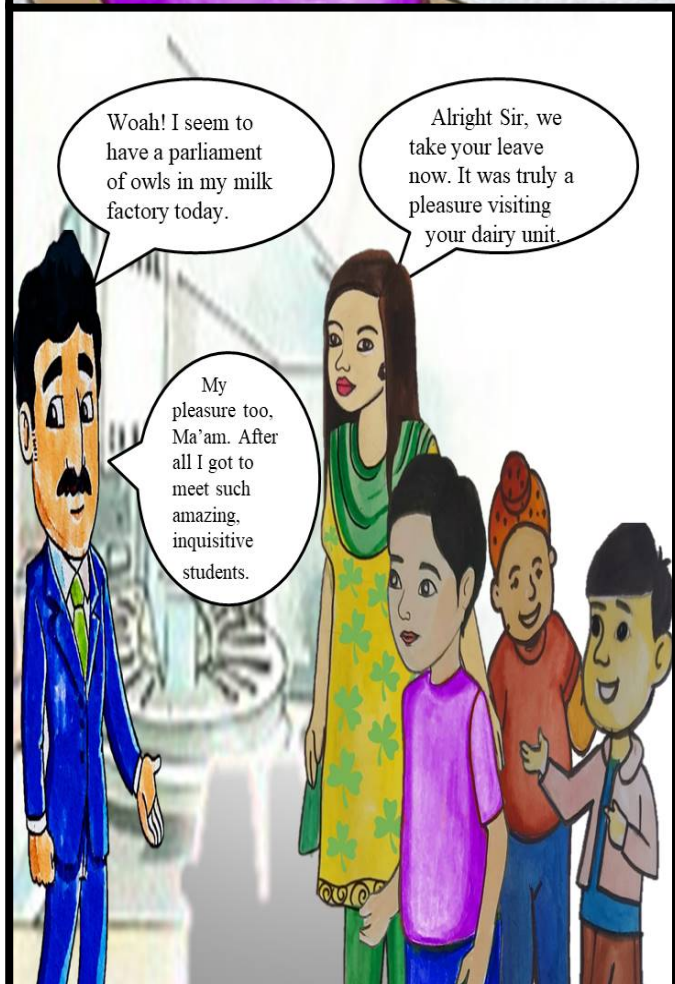
$$x + \frac{x}{4} = 1,00,00,000$$

$$\frac{5x}{4} = 1,00,00,000$$

$$x = 1,00,00,000 \times \frac{4}{5}$$

$$x = 80,00,000 \text{ L}$$

So, the total production of the previous year was 80,00,000 L.



Ajay, his friends and the teachers board the bus.



LEARNING CHECK 5

Let's recall the formulae:



Area of a square = side $\times$ side

Perimeter of a square = $4 \times$ side

Area of a rectangle = length $\times$ breadth

Perimeter of a rectangle = $2 (\text{length} + \text{breadth})$

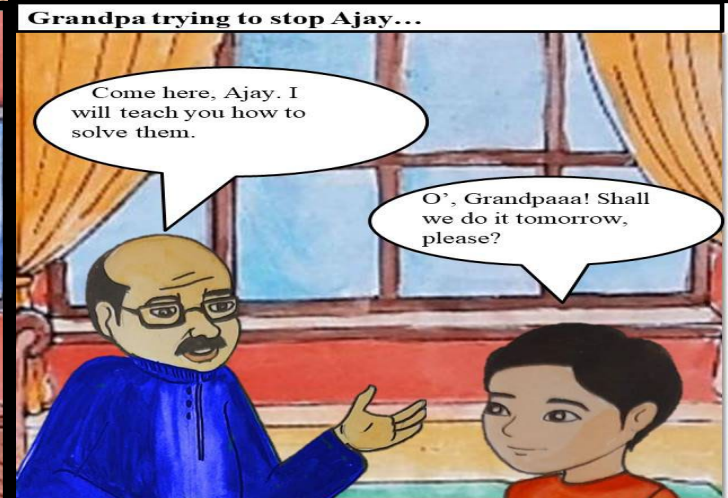
Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Perimeter of a triangle = sum of all sides

TEST YOUR KNOWLEDGE

1. If one side of a square is k cm, then its area is _____ sq. cm.
2. If in a rectangle the length is 2 m greater than its breadth (take breadth as y), then length is represented as _____ m and breadth as _____ m and perimeter = _____ m.
3. If the length of a rectangle is twice its breadth and the perimeter is 12cm, write down an equation considering breadth as b cm.
4. The lengths of the sides of a triangle are x cm, $(x - 3)$ cm and $(x + 4)$ cm.
 - (i) What is the perimeter of the triangle ?
5. An equilateral triangle has a perimeter of 36 cm
 - (i) Write down an equation in x .
 - (ii) Use your equation to find the length of each side.

Ajay is back home and is engaged in a conversation with his grandparents.



A comic strip with four panels. In the first panel, Grandpa, an older man with glasses and a mustache wearing a blue kurta, is talking to Rohit, a young boy with black hair wearing an orange shirt. They are in a room with a window in the background. Grandpa says, "Okay fine son, but let's do a fun activity. Try to guess my age." Rohit responds in the second panel, "Umm.... Maybe 65..ahaan.....64." In the third panel, Grandpa says, "Well tried! But you still couldn't get it exactly right. Don't worry, I will give you a riddle. Maybe then you can get it right." Rohit replies, "Ok, Grandpa! Tell me. I would love to solve it." In the fourth panel, Grandpa explains the riddle: "Ok, so let's say you have to find your Uncle's age. Then the riddle for you is, your uncle is three times as old as your cousin Rohit. 10 years ago, your uncle's age was 5 times that of Rohit." In the fifth panel, Rohit thinks, "Umm... I know Rohit's age. Ok! So, if Rohit is 20 years old then....." and concludes, "Uncle will be 60 years old."

Okay fine son, but let's do a fun activity. Try to guess my age.

Umm.... Maybe 65..ahaan.....64.

Well tried! But you still couldn't get it exactly right. Don't worry, I will give you a riddle. Maybe then you can get it right.

Ok, Grandpa! Tell me. I would love to solve it.

Ok, so let's say you have to find your Uncle's age.

Then the riddle for you is, your uncle is three times as old as your cousin Rohit. 10 years ago, your uncle's age was 5 times that of Rohit.

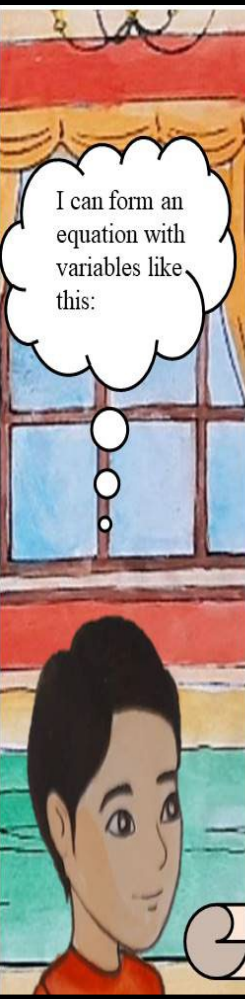
Umm... I know Rohit's age. Ok! So, if Rohit is 20 years old then.....

Uncle will be 60 years old.

A cartoon illustration of an elderly man with glasses and a mustache, wearing a blue kurta and yellow pants, sitting on a brown armchair. He is talking to a young boy with black hair, wearing an orange t-shirt and green pants, who is standing in front of him. They are in a room with a red wall, a window with yellow curtains, and a green rug.

Good Ajay! You guessed it right because you knew Rohit's age. What if you take the age of Rohit and your uncle as variables?

Then, that will become a linear equation! Wow, Grandpa!

A close-up cartoon illustration of the young boy, Rohit, looking thoughtful. He has a small cloud-like thought bubble above his head.

I can form an equation with variables like this:

Let Rohit's present age be ' x ' years.
Then Uncle's age = $3x$ years.

10 years ago,

Rohit's age = $x - 10$

Uncle's age at that time = $3x - 10$

As per the riddle,

$$3x - 10 = 5(x - 10)$$

$$3x - 10 = 5x - 50$$

$$3x - 5x = -50 + 10$$

$$-2x = -40$$

$$-40$$

$$\therefore x = \frac{-40}{-2}$$

$$x = 20$$

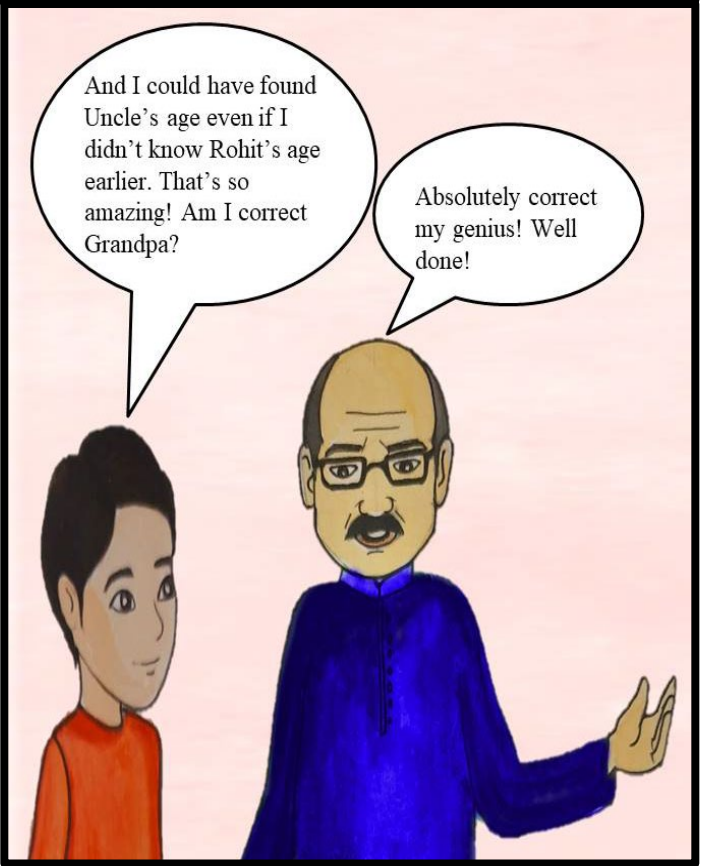
Rohit's age = 20 years

Uncle's age = $3 \times 20 = 60$ years.

A cartoon illustration of the elderly man and the young boy. The man is standing and gesturing with his right hand while talking to the boy, who is looking up at him.

Look, Grandpa. I found Rohit's present age is 20 years and uncle will be 60 years old.

O yeah! Great going!

A cartoon illustration of the young boy and the elderly man. The boy is standing and talking to the man, who is looking at him with a surprised expression.

And I could have found Uncle's age even if I didn't know Rohit's age earlier. That's so amazing! Am I correct Grandpa?

Absolutely correct my genius! Well done!



Common errors to
be cautious of.....

LEARNING CHECK 6

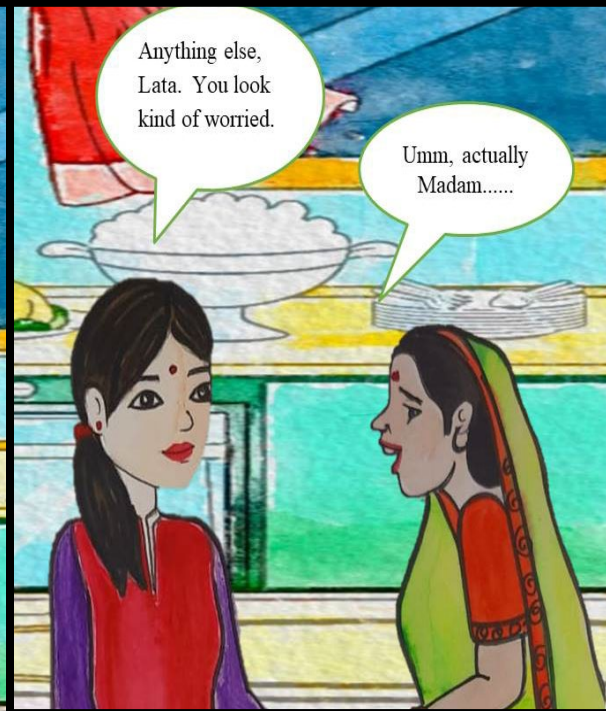
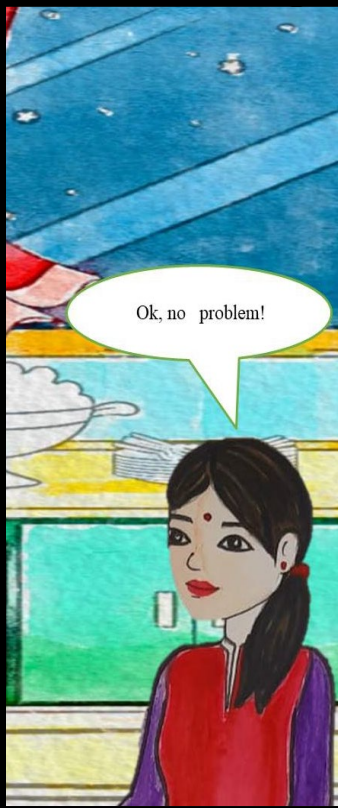
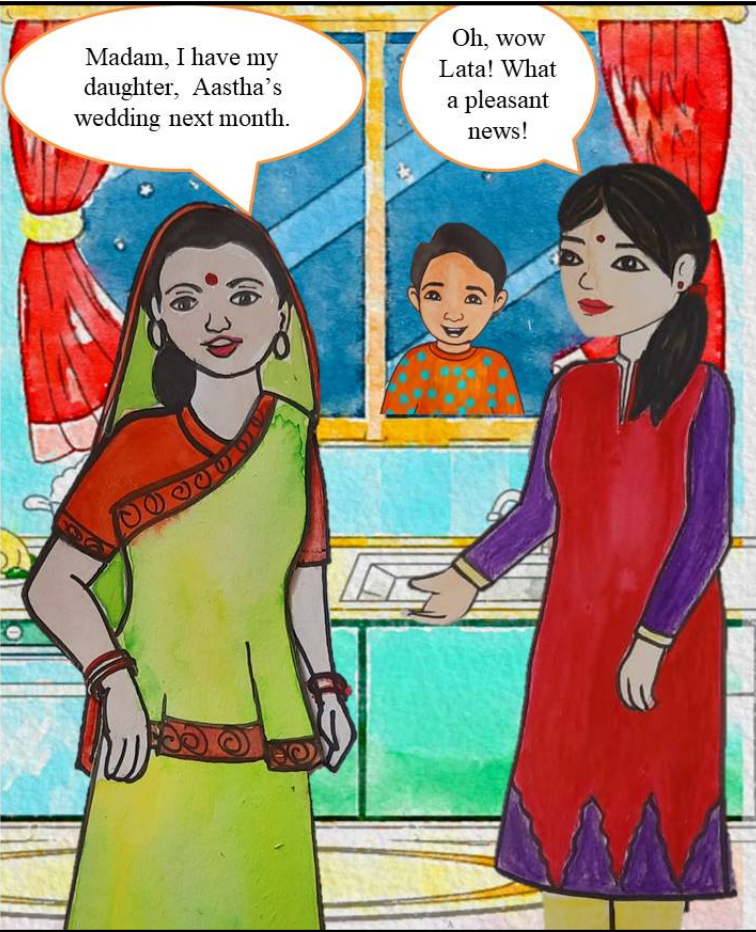
Statement	Incorrect	Correct
Denote age 5 years before	$x + 5$	$x - 5$
Denote age 7 years later	$7x$	$x + 7$
Denote age 3 times the present age	$3 + x$	$3x$

MATCH IT:

Assume Naman's age as x and match the statements in Column (A) with the expressions in Column (B).

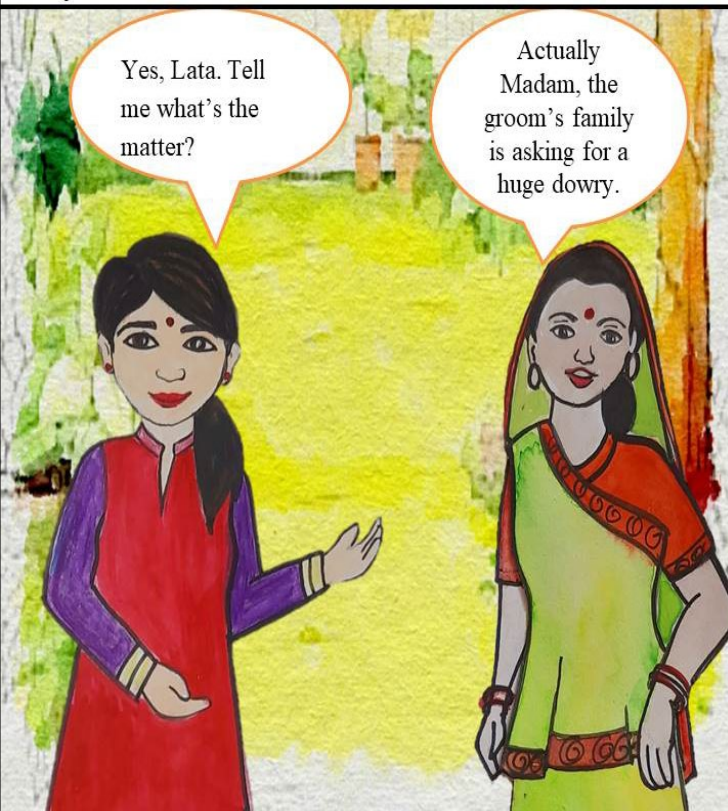
COLUMN (A)	COLUMN (B)
(i) Age of Naman's mother if she is four times as old as Naman	(a) $\frac{x}{2}$
(ii) After twenty years, she will be twice as old as Naman	(b) $6x + 5$
(iii) Naman's sister is half of his age	(c) $x - 4$
(iv) Naman's father's age if he is 5 years more than 6 times Naman's age	(d) $4x$
(v) Naman's friend is 4 years younger than him.	(e) $2(x + 20)$

Ajay while playing overhears the ongoing conversation between his mother and the domestic help, Lata.



In order to avoid the conversation, Lata goes to the backyard.

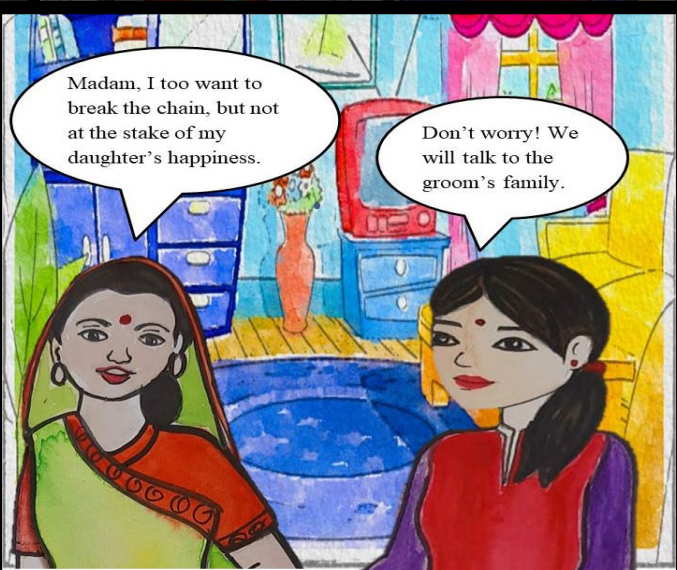
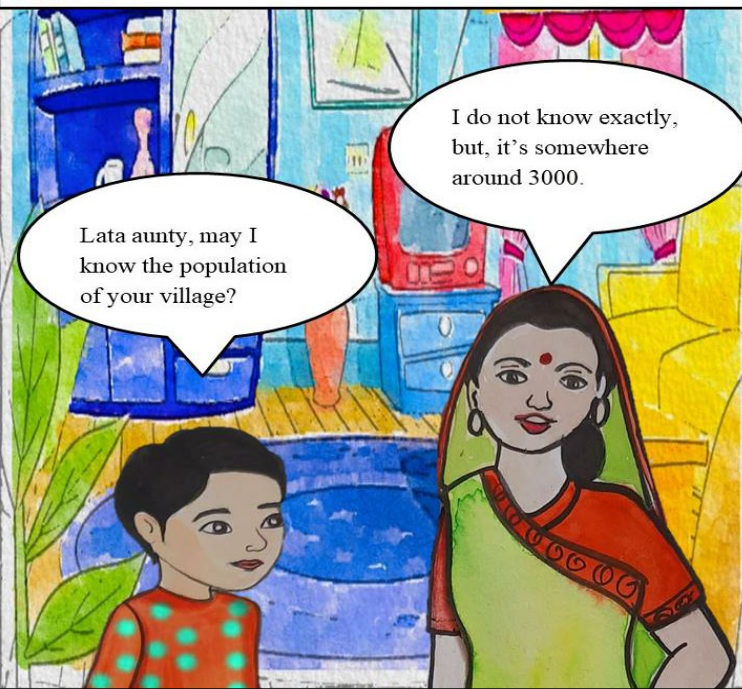
Manyata follows her there.



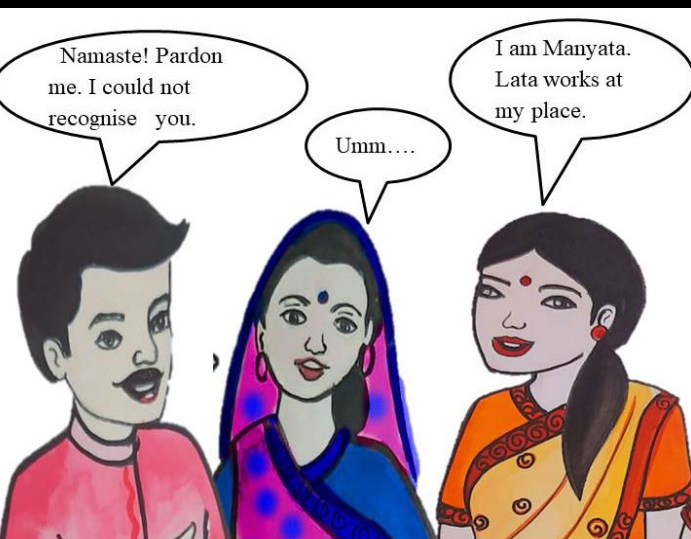
Ajay interrupting in between.

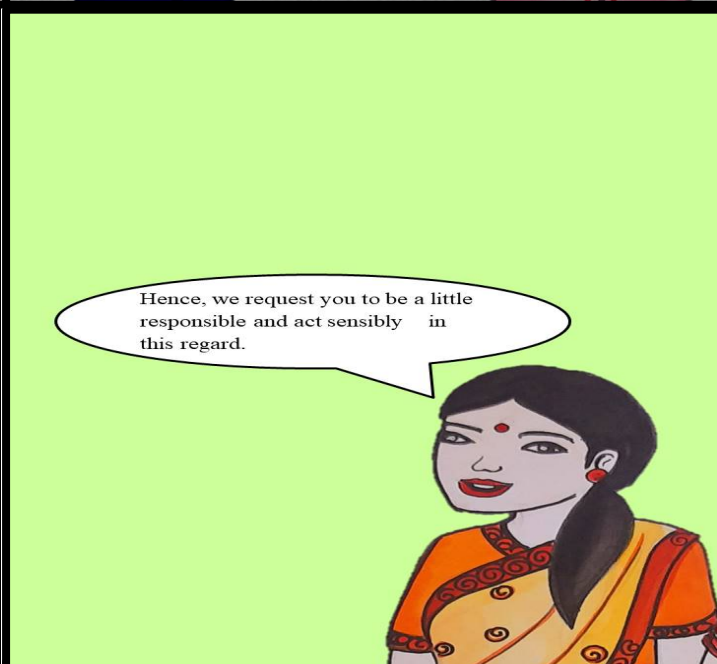


The discussion continues and they come back to the living room.

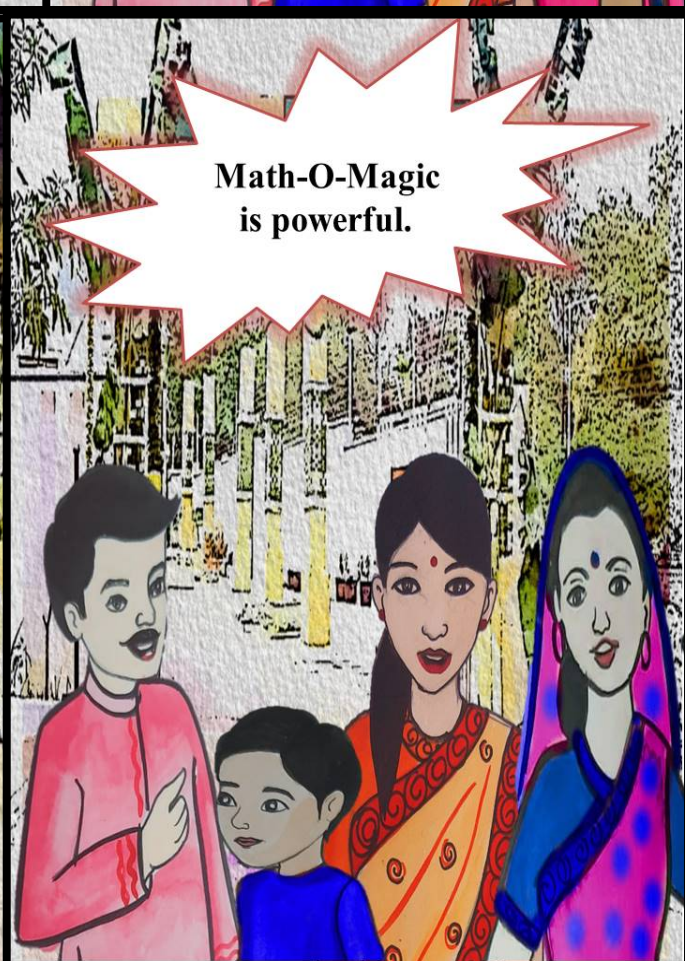
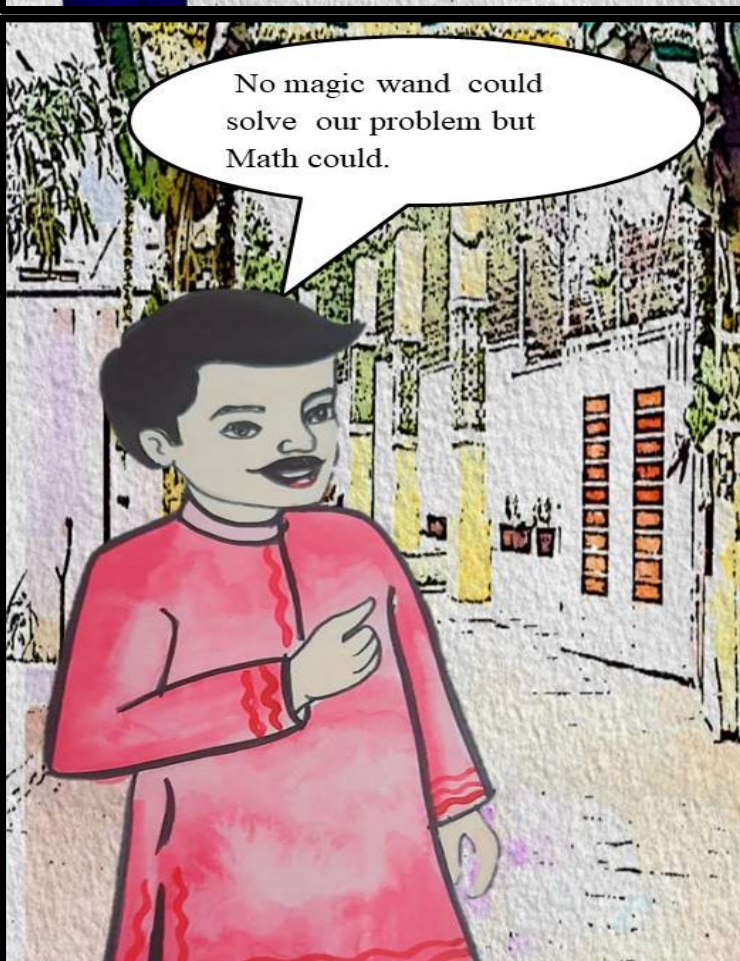
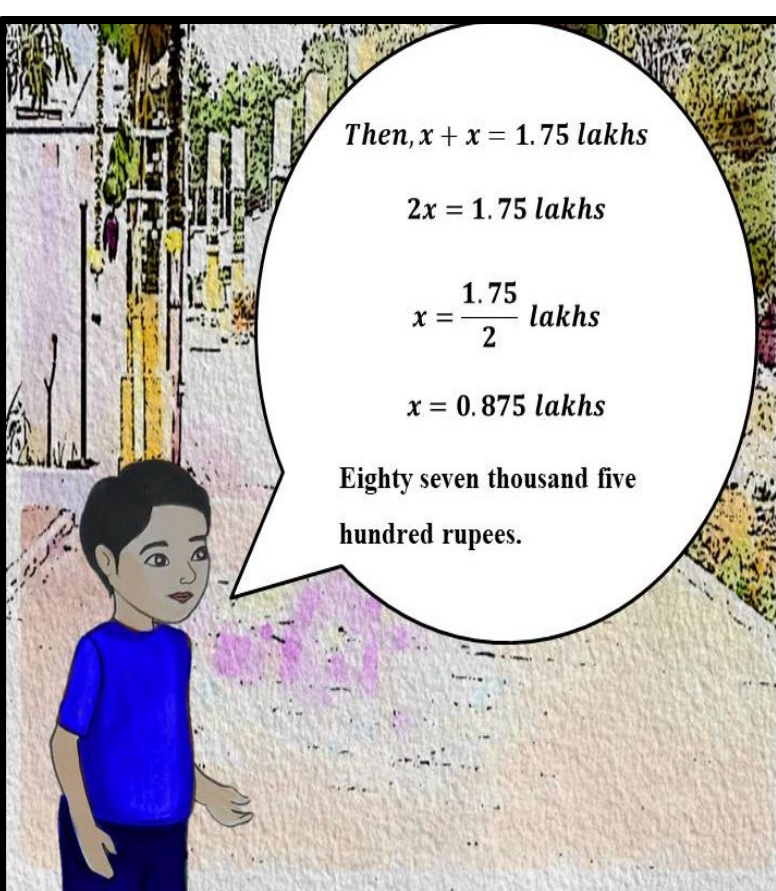


Manyata accompanies Lata to her village to meet the groom's family.









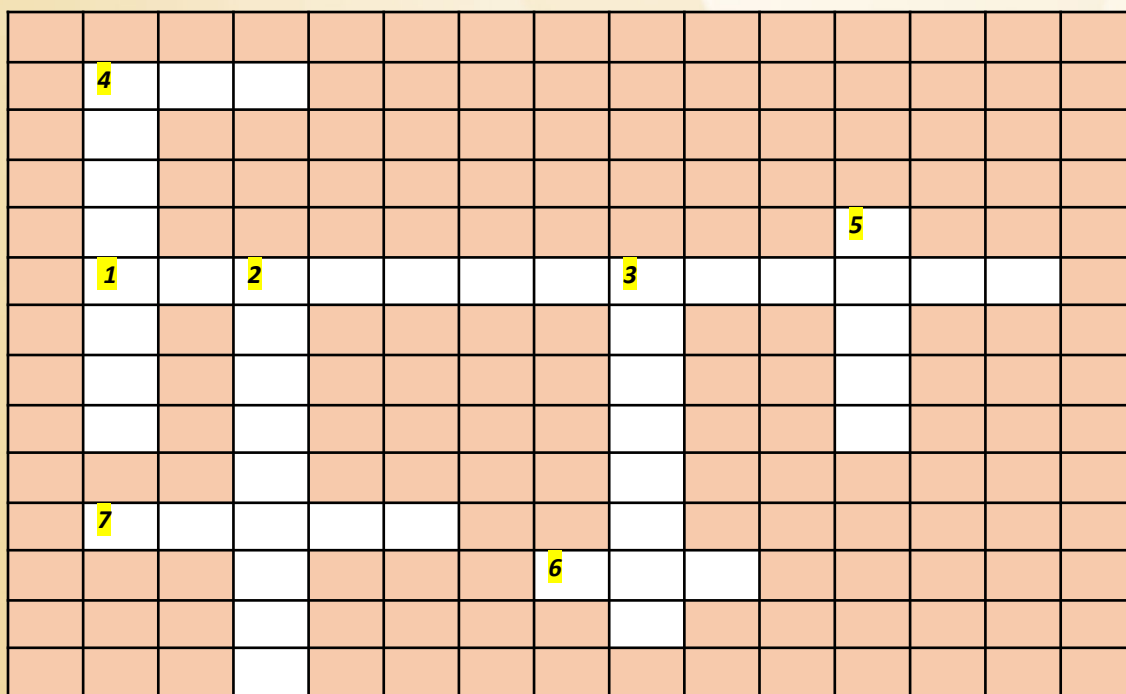
GRID IN

Complete the following statements and circle your answer in the given grid.

- (a) The degree of a variable in a linear equation is _____
- (b) We can add or subtract the _____ number from both sides of an equation.
- (c) Any term of an equation can be _____ from one side to the other side with its sign changed.
- (d) If $\frac{ax+b}{cx+d} = \frac{m}{n}$, then $n(ax+b) = m(cx+d)$. This method is called _____
- (e) To find the solution of an equation, both sides of an equation can be divided by the same number except _____
- (f) The equation $2x + 3 = 3x + 1$ is a _____ equation.

X	Y	T	O	N	F	G	A	S	M	T	R	A	N	G	O	H	K	N
V	A	R	O	L	I	N	E	Q	U	T	I	O	S	P	V	C	O	Z
C	R	O	M	U	L	T	P	L	C	I	T	O	N	V	A	I	R	E
R	E	V	E	F	T	W	O	T	H	R	E	E	F	O	T	U	S	R
E	Q	U	A	T	I	D	N	C	O	N	C	T	S	A	M	E	Z	N
T	R	N	T	A	B	L	E	A	T	G	H	I	C	K	L	M	T	O
B	R	O	T	H	E	R	T	S	R	V	A	I	R	L	N	M	Y	R
S	E	T	A	B	C	D	E	F	O	S	L	L	U	M	R	T	W	S
E	C	R	I	O	Z	R	E	G	S	P	S	A	M	N	O	U	U	S
P	V	S	J	P	T	R	V	H	I	X	S	I	P	O	L	K	S	C
I	I	T	K	Q	P	F	H	T	W	O	S	N	S	P	I	R	Q	M
T	E	U	L	M	N	O	L	I	N	E	A	R	A	Q	N	E	O	U
L	D	V	E	I	Q	U	I	Z	O	E	M	E	S	R	E	W	M	L
U	L	X	O	N	M	I	N	P	T	S	W	M	A	S	T	Q	K	T
M	T	V	N	S	A	M	S	A	O	T	O	N	M	T	A	A	I	I
P	G	Y	S	U	B	H	B	C	S	T	R	R	A	U	P	S	G	O
O	E	O	N	S	C	B	E	D	S	O	E	N	R	V	S	D	E	R
R	R	Z	E	S	D	V	F	G	E	N	S	E	F	X	H	F	C	E
C	O	S	N	N	T	A	P	I	D	E	X	C	V	Y	V	B	A	Z

CROSSWORD



Across

1. The process of shifting a number or a variable from one side to the other side by changing the sign is known as _____.
4. The value of 'x' in $\frac{3x+2}{4x+11} = \frac{4}{7}$ is _____.
6. The degree of variable in a linear equation is _____.
7. Twice a number increased by the product of 2 more than that number and 3 is equal to 21. What is the number? Write the number in words.

Down

2. An _____ equation says that the value of the expression on one side of the equality sign is equal to the value of the expression on the other side.
3. When you divide _____ by 3, the quotient is 18, and the remainder is 7 (Write the number in words).
4. The value of the variable which makes an equation true is called the _____ to the equation.
5. The width of Sudha's garden is $\frac{2}{3}$ rd of its length. If its Perimeter is 40 m, find its Breadth.

Match the statements in Column A with their solutions in Column B.

Column A	Column B
(i) Thrice of a number is 60. The number is _____.	(a) 14
(ii) If y is a positive integer and $y^2 = 196$, then the value of y is	(b) 100
(iii) If one and a half times a number is 150, then the number is	(c) 46
(iv) If $y + 12 = 36$, what does $y + 22$ represent?	(d) 9
(v) 14 subtracted from thrice of a number gives 13. The number is ____	(e) 20

MCQs

Choose the correct answer from the options given:

Q1. Which of the following represents linear equations in one variable?

- (a) $4x$
- (b) $4x^2 + 2x + 5 = 7$
- (c) $3x - 5 = 4$
- (d) $4x + 5y = 12$

Q2. If x is a number then the next consecutive number is

- (a) $x + 1$
- (b) $x + 2$
- (c) $2x$
- (d) $x - 1$

Q3. The sum of two numbers is 60, if one exceeds the other by 20 the numbers are

- (a) 30,30
- (b) 30,50
- (c) 20,40
- (d) 10,30

Q4. If $3.1b = 0.0124$ then b equals to

- (a) 0.2
- (b) 0.002
- (c) 20
- (d) 0.004

Q5. The sum of three consecutive multiples of 3 is 45. Then the smallest multiple is

- (a) 3
- (b) 15
- (c) 12
- (d) 18

PUZZLE



1. A newspaper boy got 52 new customers this month. He is now distributing to 670 customers. How many customers did he have before?

2. The sum of five consecutive multiples of 3 is 360. Find these multiples.



3. The perimeter of a rectangular hall is 176m. Its length is 4m more than thrice its breadth. What is the length and breadth of the hall?

4. If one side of a square is increased by 4m and the other side is reduced by 4m, a rectangle is formed whose perimeter is 72m. Find the side of the original square



5. Ananya is 30 years old and Anu is 6 years old. In how many years will Ananya be twice as old as Anu?



ANSWERS

LEARNING CHECK 1

Test your knowledge

(A) 1,3,5

(B)

1. $2x + 4$
2. $x, x + 1, x + 2$
3. $2 \times (x + 7) = 13$
4. $7x, 7x + 7, 7x + 14$
5. $3x - 2 = 4$

LEARNING CHECK 2

Try these:

1. $x = 3$
2. $p = 15$
3. $x = 1$
4. $y = 8$

LEARNING CHECK 3

Try this

$$m = 15$$

LEARNING CHECK 4

Puzzle:

$$5x, 6x, 6x = 30,$$
$$x = 5, 5, 25, ₹ 350$$
$$₹ 1250, ₹ 1600$$

LEARNING CHECK 5

1. k^2
2. $length = y + 2,$
 $breadth = y,$
 $perimeter$
 $= 2(2y + 2)$
3. $2(2b + b) = 12$
4. $Perimeter = 3x + 1$
5. (i) $3x = 36$
(ii) $length = 12 \text{ cm}$

LEARNING CHECK 6

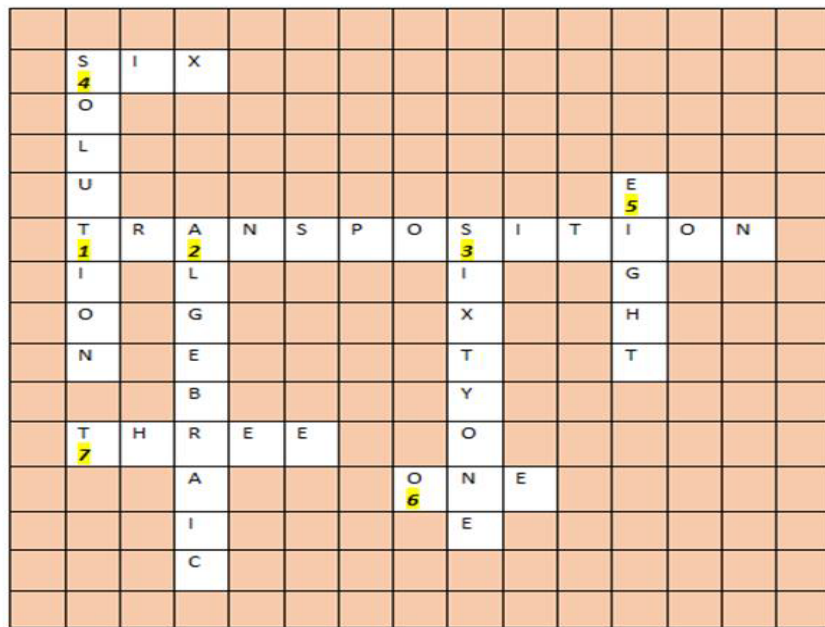
Match it:

- (i)-(d) (ii)-(e)
- (iii)-(a) (iv)-(b)
- (v)-(c)

GRID IN

- (a) ONE
(b) SAME
(c) TRANSPOSED
(d) CROSS
MULTIPLICATION
(d) ZERO
(f) LINEAR

CROSS WORD



MATCH THE COLUMNS

1- (e) 2- (a) 3- (b) 4- (c) 5- (d)

MCQs

1. c 2. a 3. c 4. d 5. c

PUZZLE

1. 618 2. 66, 69, 72, 75, 78
3. breadth = 21 m, length = 67 m
4. Side = 18 m. 5. 18 years.

BIBLIOGRAPHY

1. Mathematics –Text book for class VIII, N.C.E.R.T

DISCLAIMER

This Graphic Novel is a supportive reading and learning material created by Delhi Public School Jaipur, to enable students to have a deeper and better understanding of the course content based on the Chapter, “Linear Equations” of the NCERT book for Class VIII.

This publication is meant as a source of valuable information for the reader, however it is not meant as a substitute for direct expert assistance. If such level of assistance is required, the services of a competent professional should be sought.

The story has not been duplicated or plagiarised. The illustrations are an original work of the Art Teacher and ensure originality. This is a work of fiction. Unless otherwise indicated, all the names, characters, businesses, places, events and incidents in this book are either the product of the script writer’s imagination or used in a fictitious manner. Any resemblance to actual persons, living or dead, or actual events is purely coincidental. The use of this book implies your acceptance of this disclaimer.

FROM THE PRINCIPAL'S DESK

The National Education Policy 2020, Central Board of Secondary Education plays a significant role in bringing about the much required changes in the present education system. It helps to strengthen and develop the Life Skills, along with the Vocational Skills in students and teachers to build a firm foundation for the 21st century India. NEP 2020 has given a mantra of joyful and experiential learning by integrating visual and performing arts into academics.



Every project has a birth history and here I take pleasure to share the conceptualization of the 'Graphic Novel' project. It all started in 2019 when I and Mr. Sandeep Sethi visited Ms. Anita Karwal, Secretary, Department of School Education and Literacy, Ministry of Education (Chairman CBSE, Delhi at that time) to present a book named 'Khichdi' to her.

Mr. Sandeep Sethi had conceived an ingenious idea of simplifying the complex concepts in an interesting manner by integrating arts and making it an experiential learning pedagogy and shared it with me for giving it a shape wherefore I started the compilation of the book 'Khichdi'.

Ms. Anita Karwal found 'Khichdi' to be very informative, engaging and child centric way of teaching. She coined a term, 'Comic Cast', pedagogy similar to Podcast, to be used to enthuse joyful learning among children. Ms. Anita Karwal got it included as a supportive teaching aid for the Food and Nutrition course with QR code immediately and thus, her enthusiasm and support excited us to embark on our new journey of creating Graphic Novels at large scale. To inspire and embolden the educators, Ms. Anita Karwal, Secretary Education MOE and Mr. Manoj Ahuja, IAS, Chairman, CBSE, Delhi willingly joined the WhatsApp group comprising fifty schools from different states of India to create different inter disciplinary projects of Graphic Novels.

I thank Ms. Anita Karwal for her vision which turned this project into a reality. She appreciated and recognized the diligent efforts of all the participating schools. Her hand holding at each step to direct, improve and enhance our work to make the Graphic Novels more fruitful and enriching, took the projects to greater heights and enabled them worthy to be uploaded on the Diksha portal to facilitate learning far and wide. This will set an example for all the other schools to think out of the box and use innovative strategies to integrate art and make learning joyful by demonstrating experiential learning, which is the need of the hour for our young children.

I thank my Mentor Ms. Aditi Misra, Director, Delhi Public School, Jaipur, for her constant support and always motivating us to put our best foot forward. Her undaunting spirit towards excellence moves us as a school towards performing better than before with each new project.

We owe our sincere gratitude to Mr. Sandeep Sethi for being a torch bearer and inspiring many schools to work collaboratively to bring out the true spirit of education.

I hope this Graphic Novel will enable our young learners to get a little more of learning.

Rita P Taneja
Principal
Delhi Public School, Jaipur

This Mathematics Graphic Novel is amongst a tiny percentage of those Math Comic books destined to be loved by students with its aim of beholding the interests of the learners to the 'Tee'. It covers the basics of Linear Equations with clarity and a rarely seen brightness. The illuminating illustrations showcasing tiny events of Ajay's life woven with appropriate mathematical equations provide an excellent starting point for any student looking to learn and understand the topic. The novel is inviting and comprehensive, the proofs are rock-solid, and the overall handling of the topic is gentle – something the beginners will be grateful for. Abundantly filled with exercises and well-chosen examples, this book will prove to be an invaluable tool for the teaching and learning of Linear Equations.



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