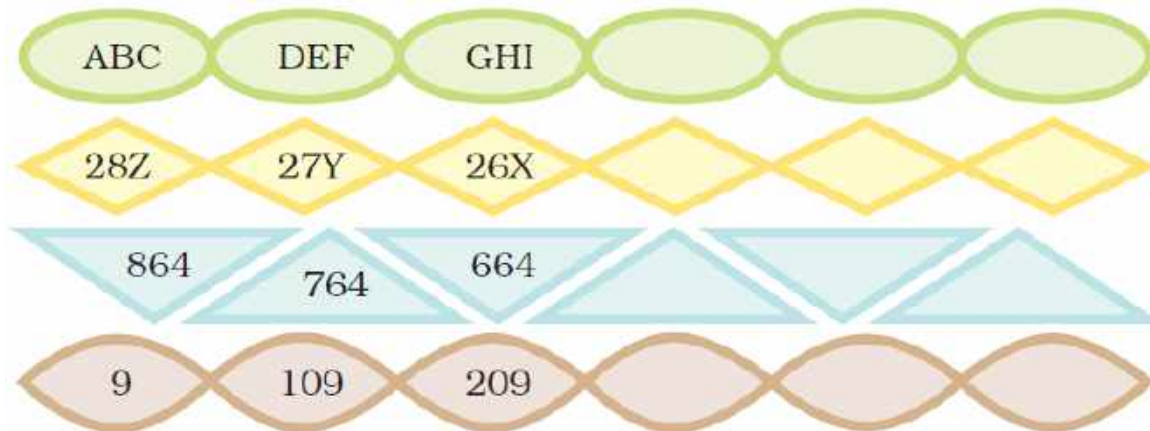


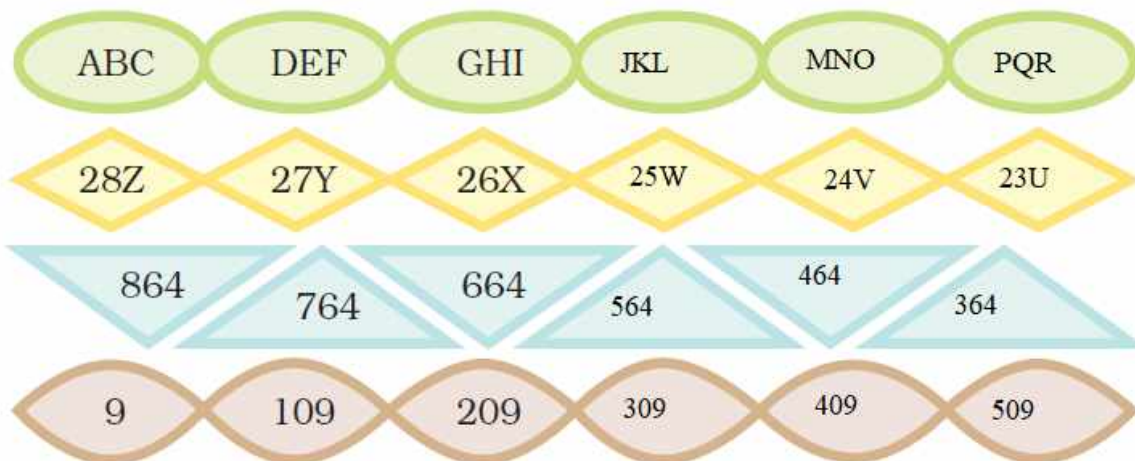
NCERT book Page No: 109

**Question: 1**

We can also make patterns with numbers and letters. Below are a few examples.  
Can you take them forward?



**Answer:**

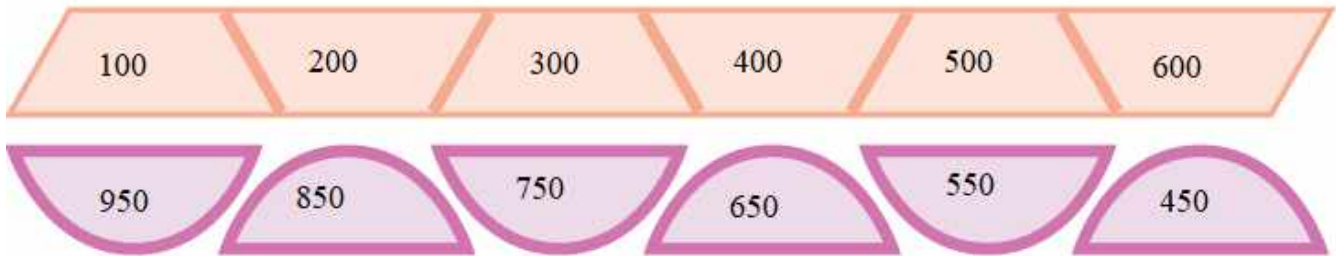


**Question: 2**

Now write your own number patterns.



**Answer:**



**Question: 3**

**Make a pattern without numbers.**

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**Answer:** A pattern without numbers are given below

ABC	DEF	GHI	JKL	MNO	PQR
-----	-----	-----	-----	-----	-----

NCERT book Page No: 110

**No Number Comes Twice**

**Look at the number box. Can you see a pattern?**



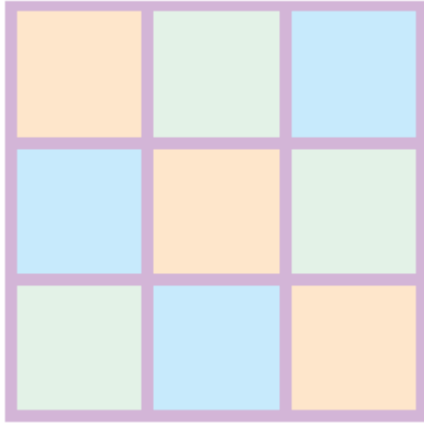
1	2	3
3	1	2
2	3	1

No number comes twice in any line!

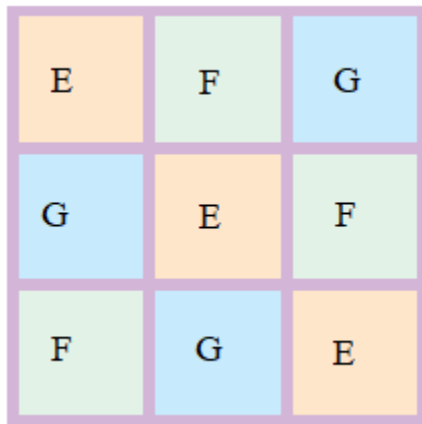


**Question: 4**

**Now you try writing the letters – A, B, C in the box so that no letter comes twice in any line.**



**Answer:**

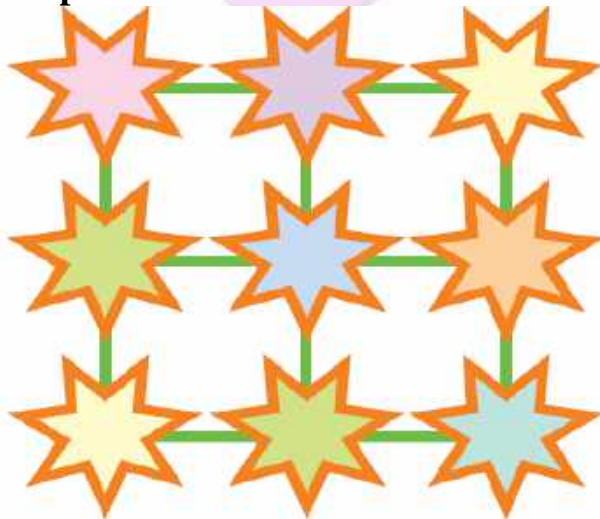


NCERT book Page No: 111

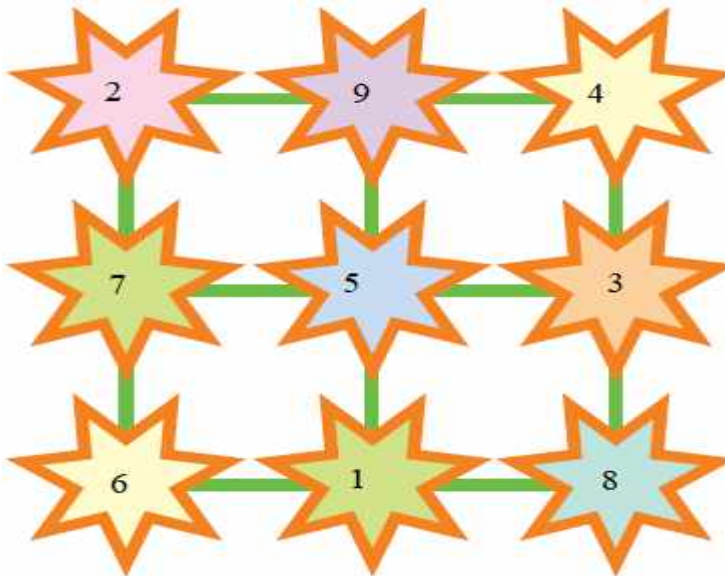
**Magic Patterns**

**Question: 5**

Now you fill these stars. Use numbers 1 – 9 and the rule that the numbers on each line add up to 15.



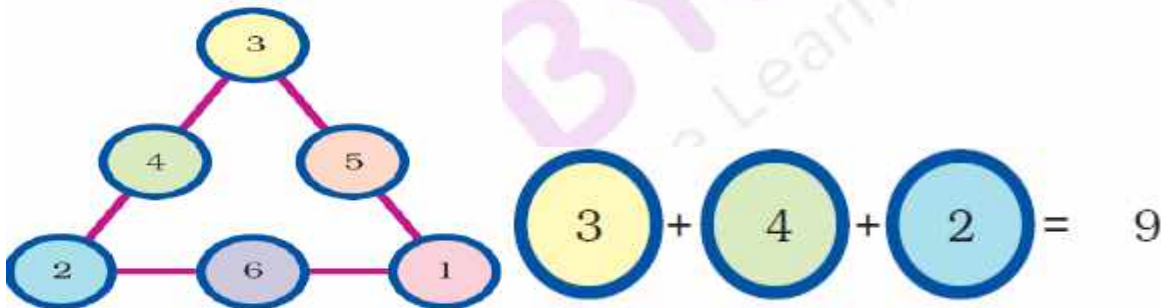
**Answer:** In the given figure below, the numbers are filled in the stars from 1 to 9 which add upto 15 in each line.



**Magic Triangles**

Look at this number pattern.

**Rule:** Numbers on each side of the triangle add up to 9



**Question: 6**

See if the other sides of the triangle also add up to 9.

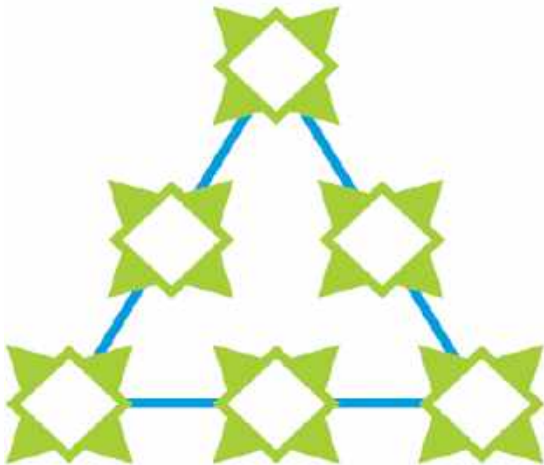
**Answer:** Yes, the numbers on the other sides of the triangle add up to 9  
 $3 + 5 + 1 = 9$  and  $2 + 6 + 1 = 9$

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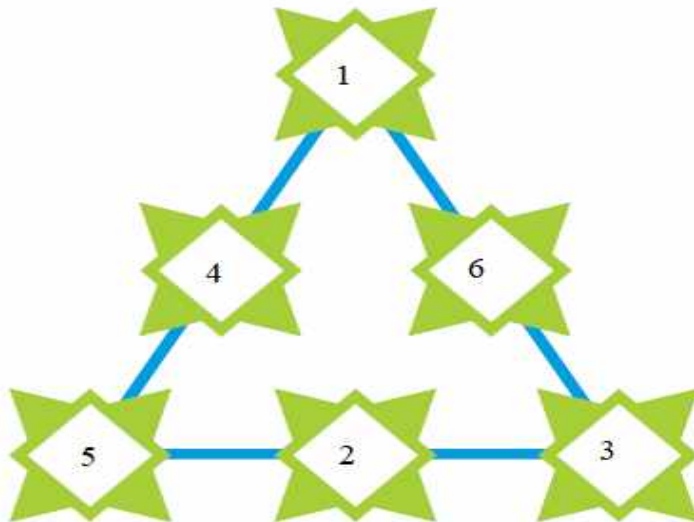
**Question: 7**

Now use numbers 1 – 6 to make your own magic triangle.

**Rule:** Numbers on each side must add up to 10



**Answer:** The numbers from 1 to 6 are arranged in the figure below which add up to 10 in each line.

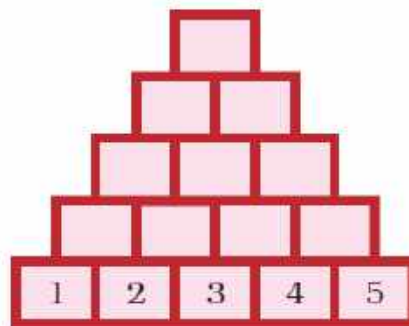
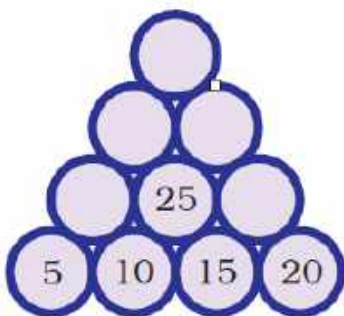


NCERT book Page No: 113

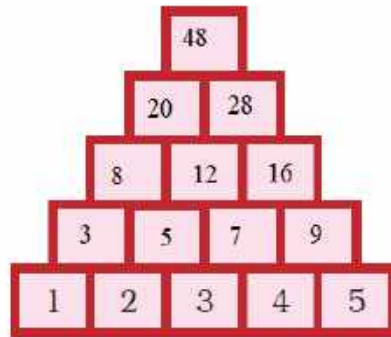
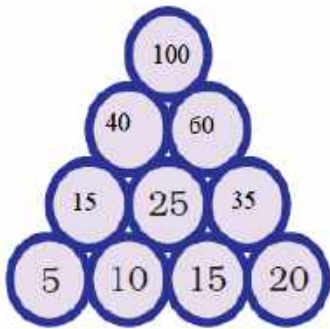
Number Towers

Question: 8

Using the same rule, complete these number towers.



Answer:



### The Same Sum Rule

Some friends are playing with number cards. See how they add.



Question: 9

Now you write any number and the three numbers after that. Make a pattern using the rule.

--	--	--	--

See if you get the same sum.

	+		=	
	+		=	

Answer: The numbers using the same pattern are

21	22	23	24
----	----	----	----

21	+	24	=	45
22	+	23	=	45

NCERT book Page No: 114  
Patterns with Addition

$$\begin{array}{r}
 1 + 2 + 3 = 6 \\
 2 + 3 + 4 = 9 \\
 3 + 4 + 5 = 12
 \end{array}$$



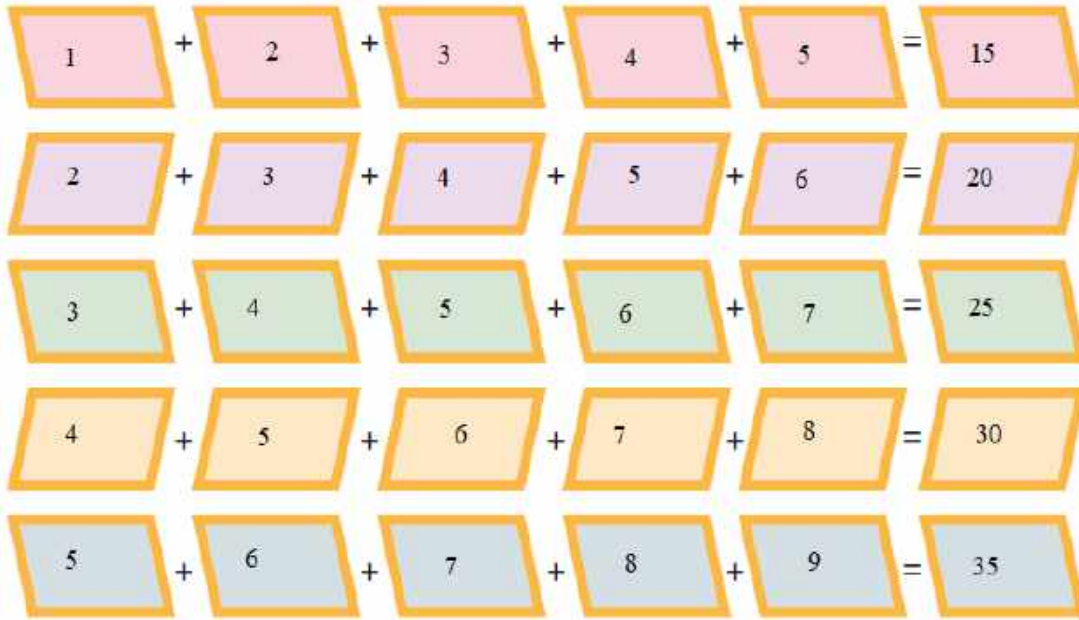
$$\begin{array}{r}
 1 + 2 + 3 + 4 = 10 \\
 2 + 3 + 4 + 5 = 14 \\
 3 + 4 + 5 + 6 = 18
 \end{array}$$

**Question: 10**

Now, you try to make such a pattern with 5 numbers in order.

<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>

**Answer:**



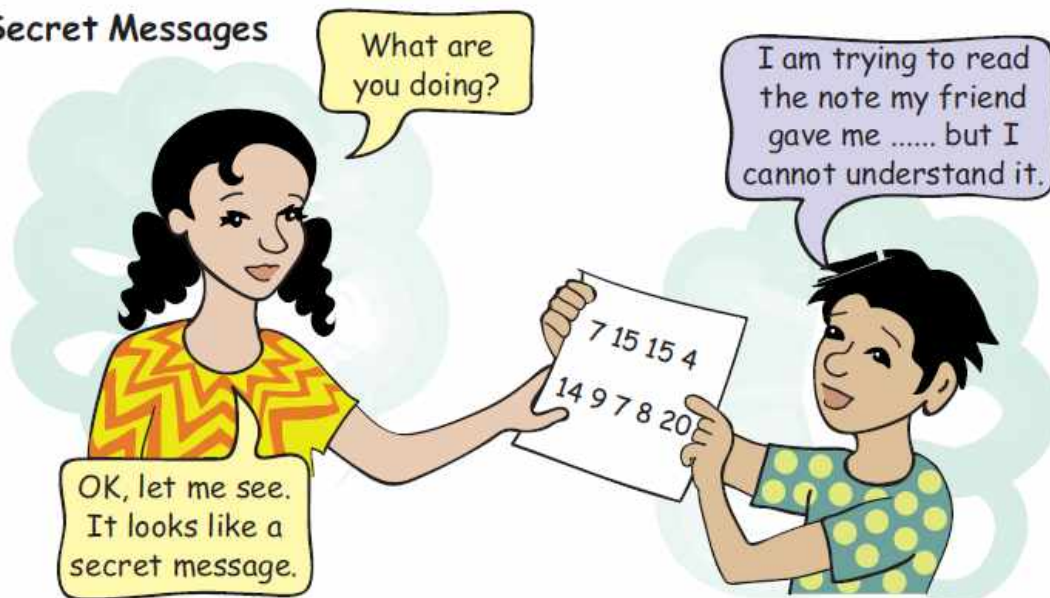
**Question: 11**

**Does the sum grow by 5 each time?**

**Answer:** Yes, the sum grows by 5

**NCERT book Page No: 115**

**Secret Messages**



**Question: 12**

**Complete this list of letters and numbers to help you.**



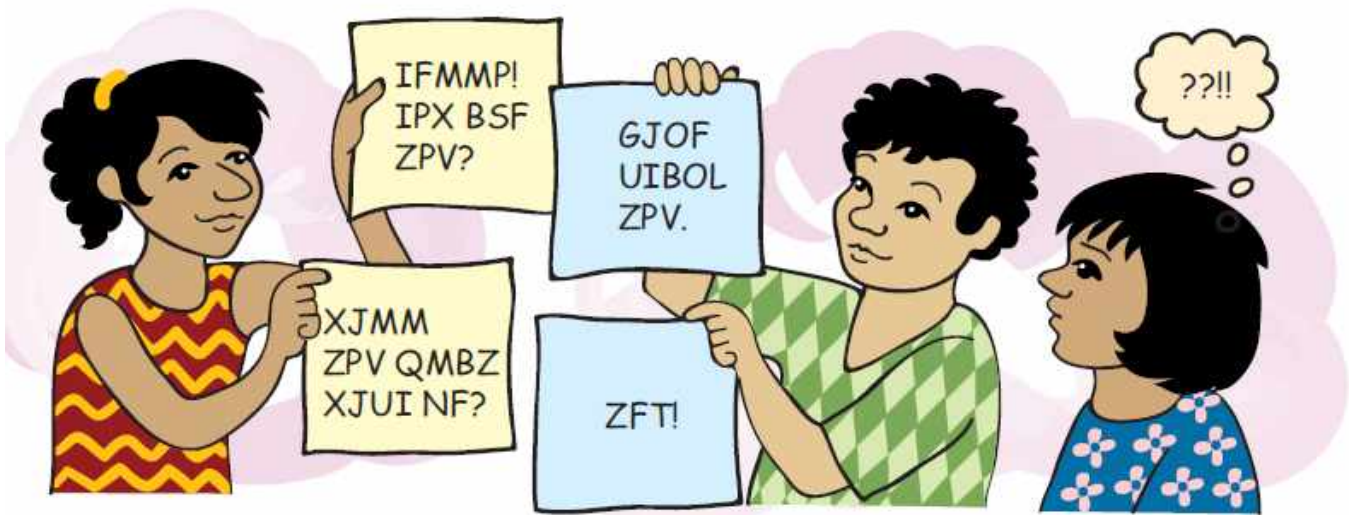


Therefore, let us dance can be written as follows



NCERT book Page No: 116

**More Secret Messages**



**Question: 15**

**What was Kahuli's secret message?**

**Answer:** New arrangement of letters for secret message is given below

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

Hence, the secret message of Kahuli is 'XF BSF GSJFOET' i.e., WE ARE FRIENDS

**Question: 16**

**What did Shablu and Jaggu write?**

**Answer:** The secret message written by Shablu is 'IFMMP! IPX BSF ZPV?' And 'XJMM ZPV QMBZ XJUI NF?'

Hence,

'IFMMP! IPX BSF ZPV?' becomes – Hello! How are you?

And 'XJMM ZPV QMBZ XJUI NF?' becomes – Will you play with me?

The secret message written by Jaggu is 'GJOF UIBOL ZPV ZFT!'

This secret message becomes – Fine thank you. Yes!

**Question: 17**

Use the same rule to write- 'Meet me on the moon'.

**Answer:** 'Meet me on the moon' secret message will be NFFU NF PO UIF NPPO.

**Question: 18**

Make different rules and ask your friends to crack the secret message.

**Answer:** Let the new rule be – write 'A' at the place of 'C', 'B' at the place of 'D' and so on. The new key for this new rule will be

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

Now, write 'I am Sorry' by using this new rule.

The secret message for 'I am Sorry' will be 'G YK QMPPW'

**NCERT book Page No: 117-119**

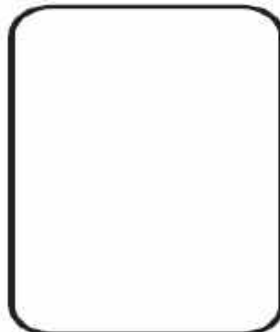
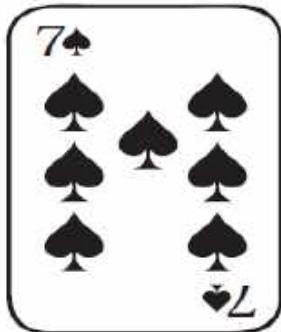
**Upside Down**

Anisha is playing. She is showing her friends that she can stand on her head.

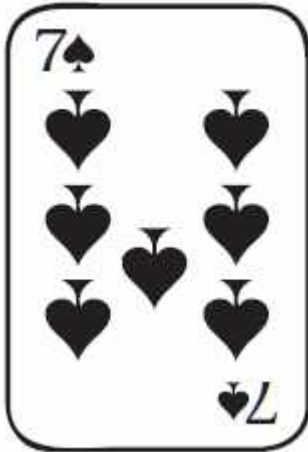


**Question: 19**

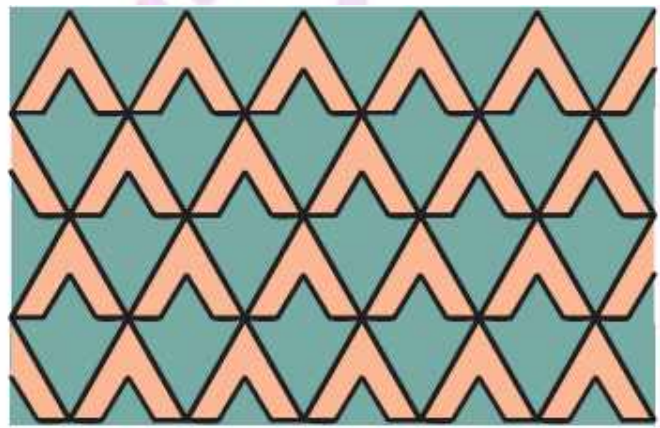
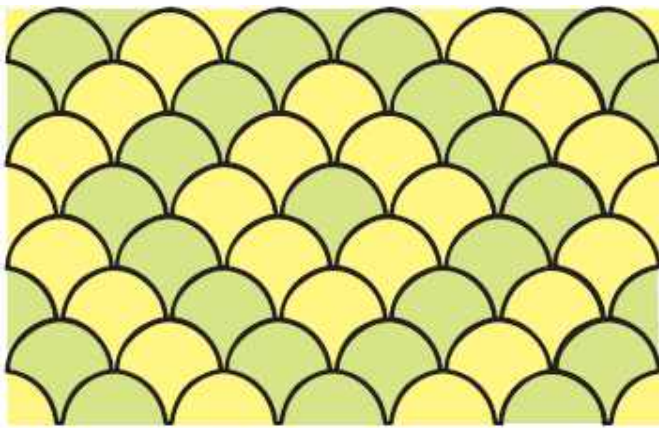
Now, Anisha is playing with this card. Draw what it will look like when upside down.



**Answer:** The card when made upside down looks like as below



**Floor Patterns**

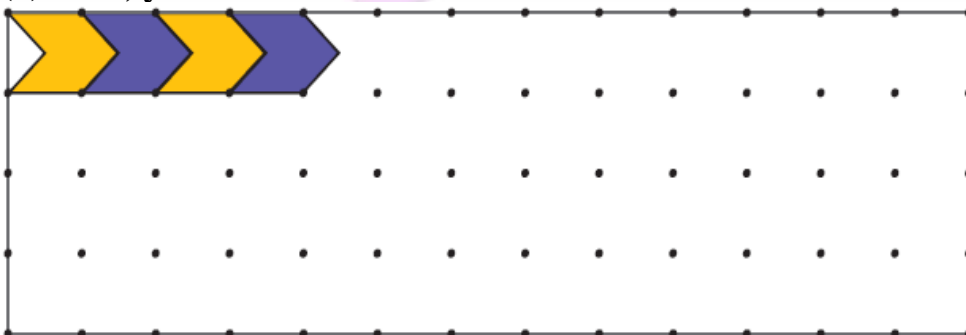


**Question: 20**

**Have you ever seen a floor with tiles of these shapes?**

**Answer:** No, I have never seen these shapes of tiles on the floor.

**(a) Now, you cover this floor with this tile.**

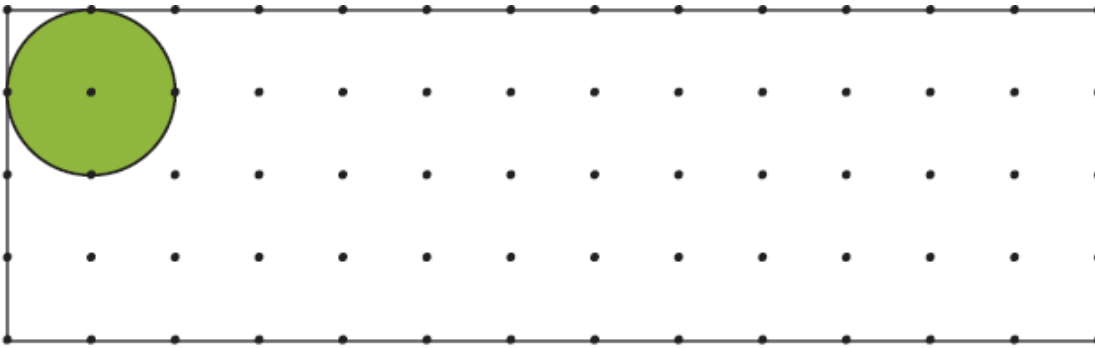


**Answer:** Do it yourself

**(b) Can you make such a floor design with a tile like a circle?**

**Try with this green tile without leaving a gap. Could you do it? Discuss with your**

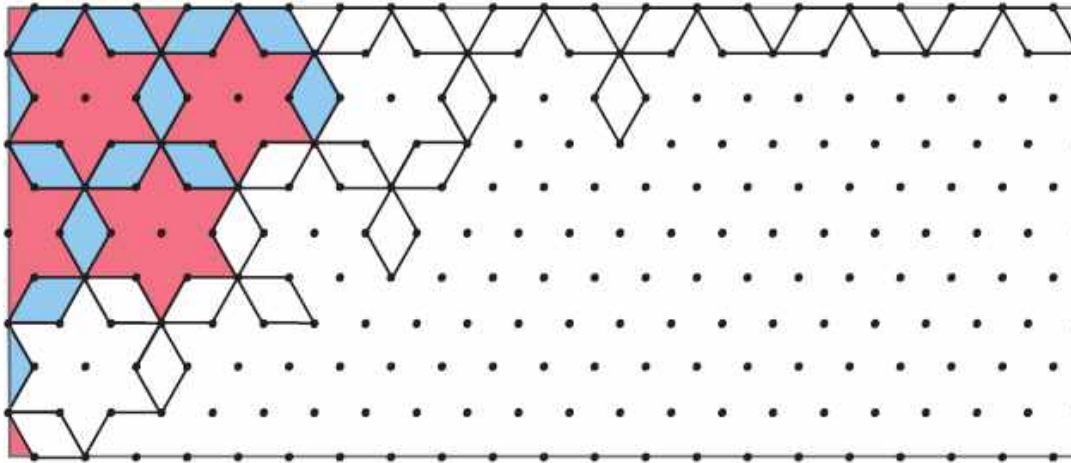
friends.



**Answer:** Do it yourself

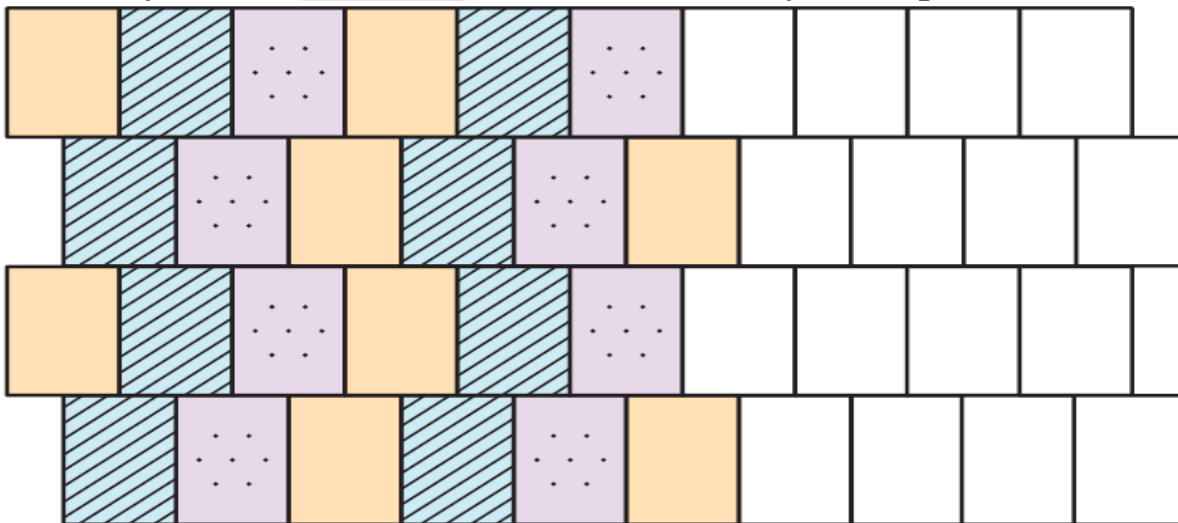
We cannot make design without leaving a gap by using circular tiles.

**(c) Complete this tiling pattern.**



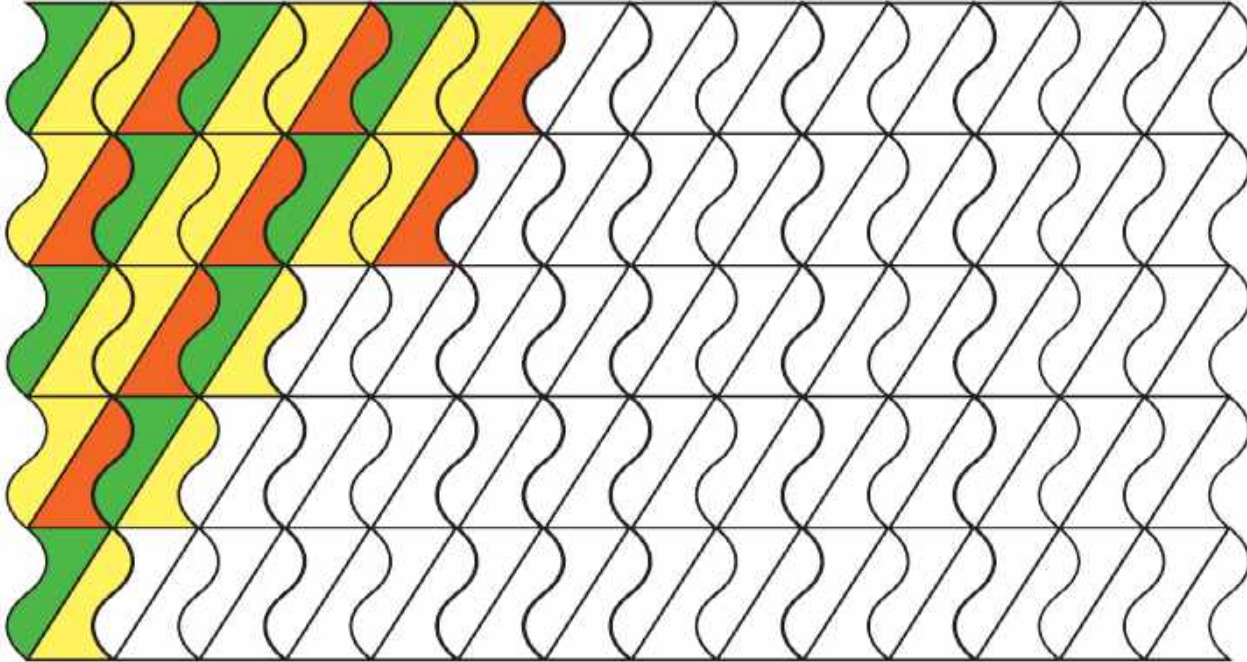
**Answer:** Do it yourself

**(d) Ramaiya has made a wall with his blocks. Can you complete this for him?**



**Answer:** Do it yourself

**(e) Renu began to paint this wall. Now you help her to complete it.**



**Answer:** Do it yourself.

