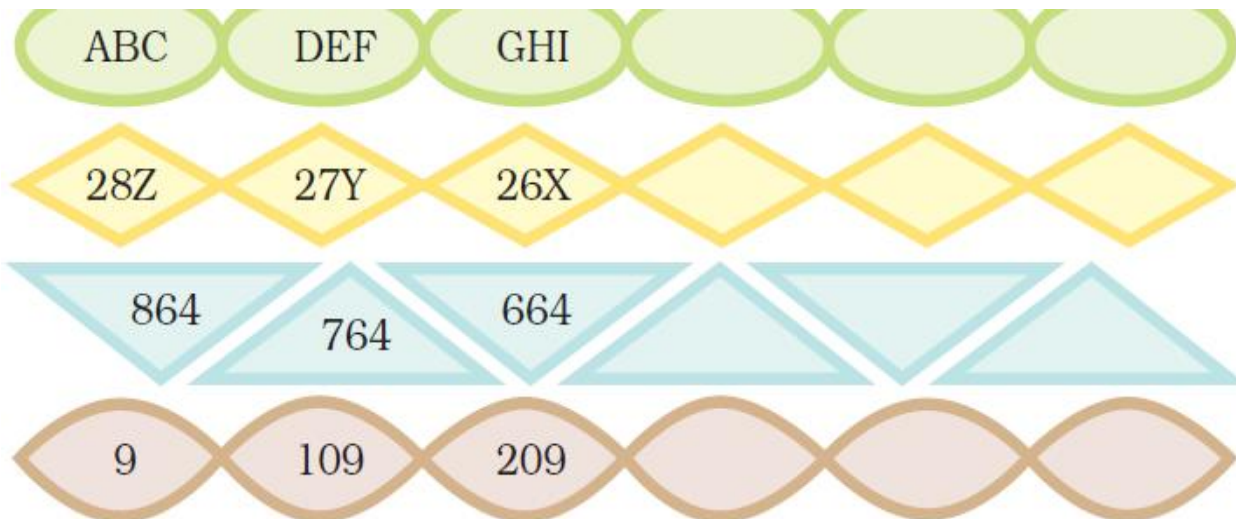


## CHAPTER -10

### Play with Patterns

#### 2MARK QUESTIONS

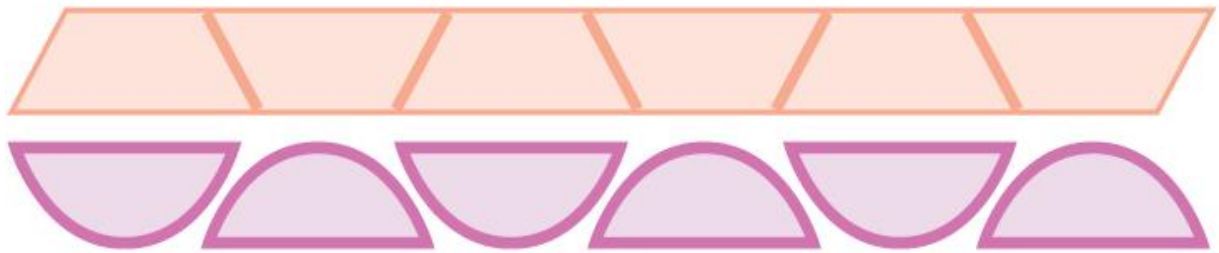
**Q1.** We can also make patterns with numbers and letters. Below are a few examples. Can you take them forward?



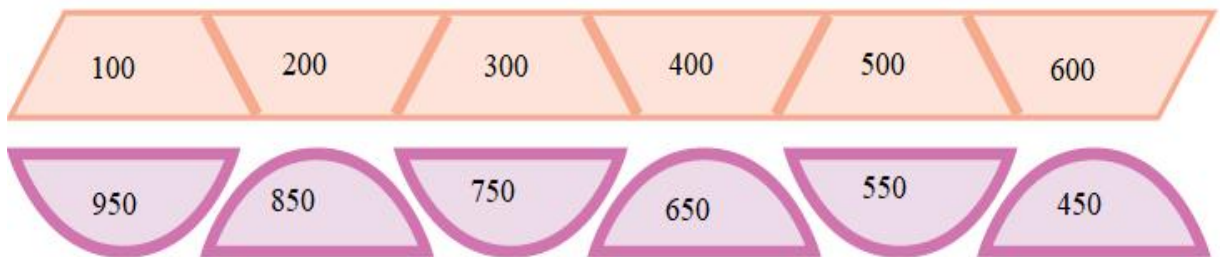
**Answer:**



**Q2.Now write your own number patterns.**



**Answer:**



**Q3.Make a pattern without numbers.**



**Answer:**

A pattern without numbers is given below:

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



1	2	3
3	1	2
2	3	1

No number comes twice in any line!

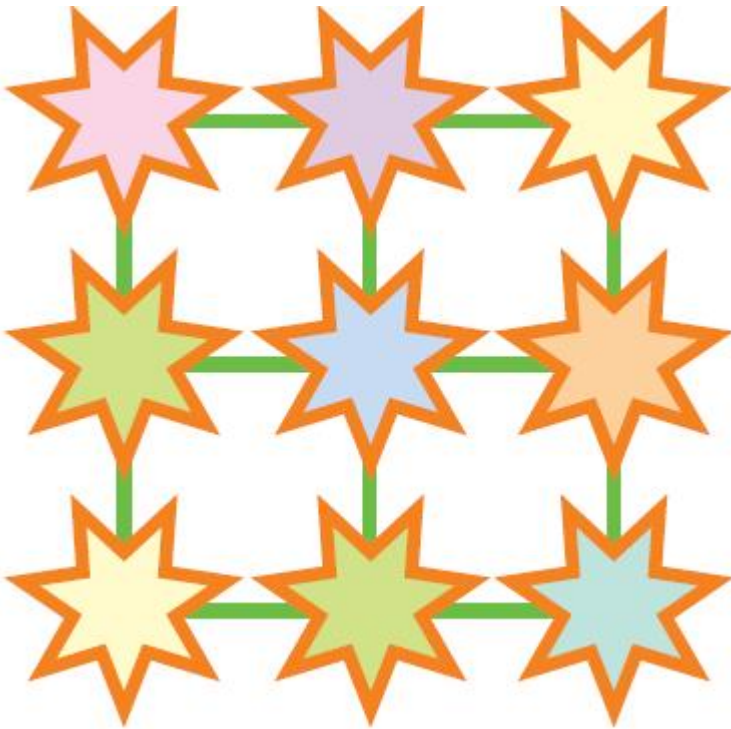


**Q4.** Now, you try writing the letters – A, B, and C in the box so that no letter comes twice in any line.


**Answer:**

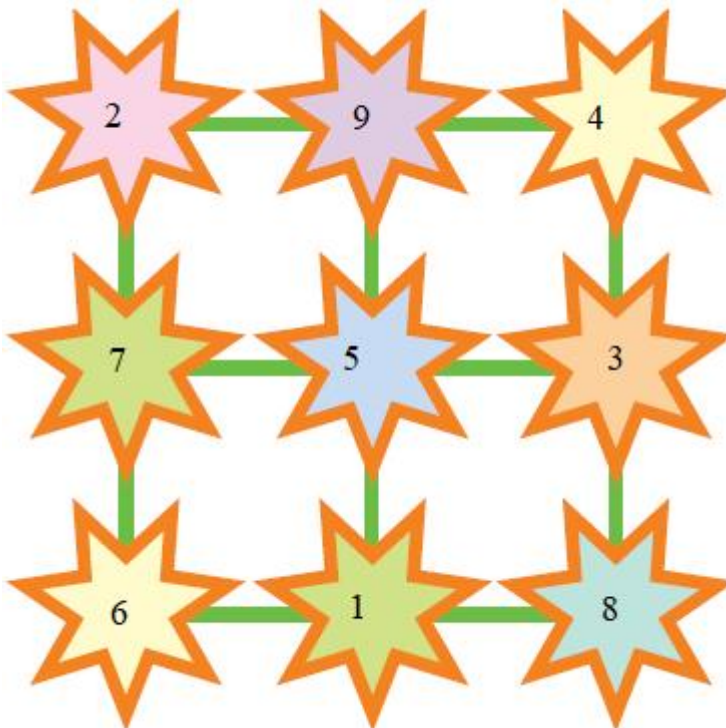
E	F	G
G	E	F
F	G	E

**Q 5.** Now you fill these stars. Use numbers 1 – 9 and the rule that the numbers on each line add up to 15.



**Answer:**

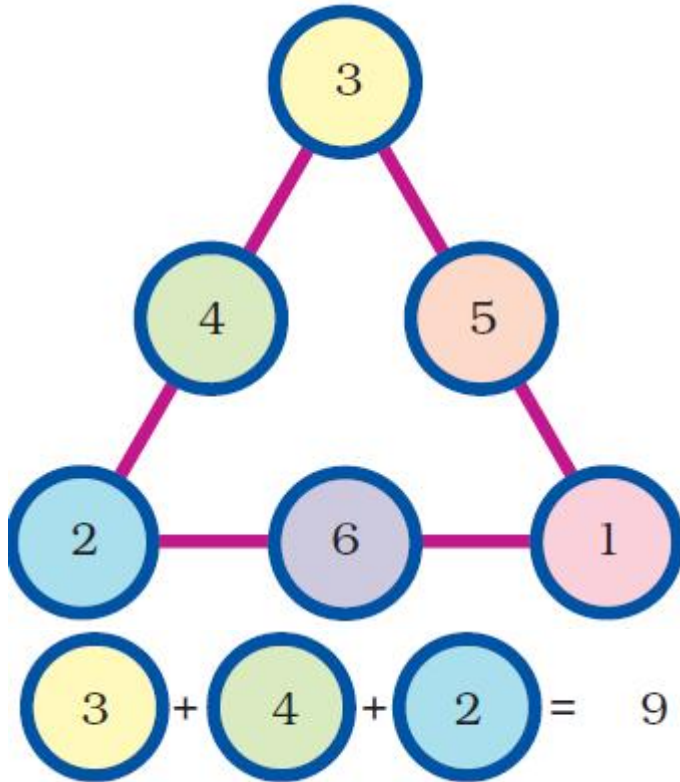
In the figure given below, the numbers are filled in the stars from 1 to 9, which adds up to 15 in each line.



### Magic Triangles

Look at this number pattern.

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



**Q6.** See if the other sides of the triangle also add up to 9.

**Answer:**

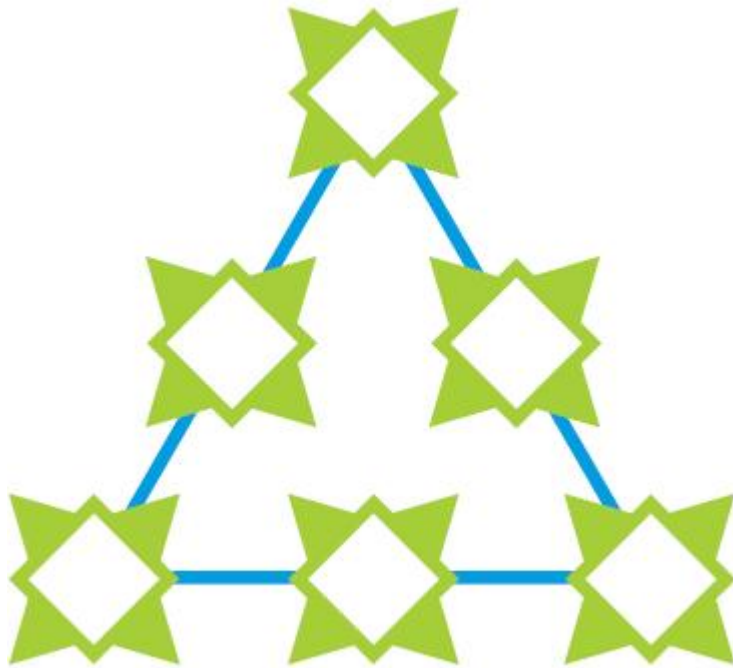
Yes, the numbers on the other sides of the triangle add up to 9.

$3 + 5 + 1 = 9$ , and  $2 + 6 + 1 = 9$ .

**Q7.** Now, use numbers 1 – 6 to make your own magic triangle.

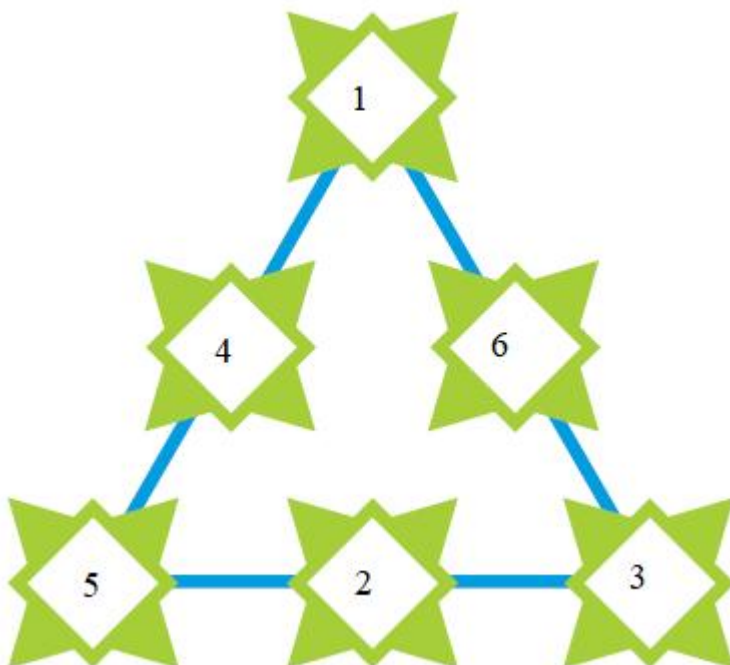
**Rule:** Numbers on each side must add up to 10



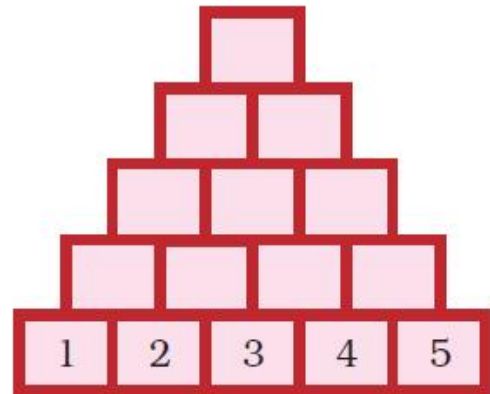
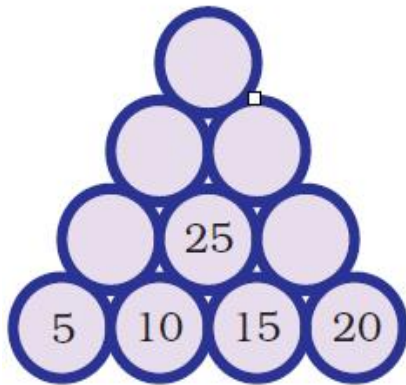


**Answer:**

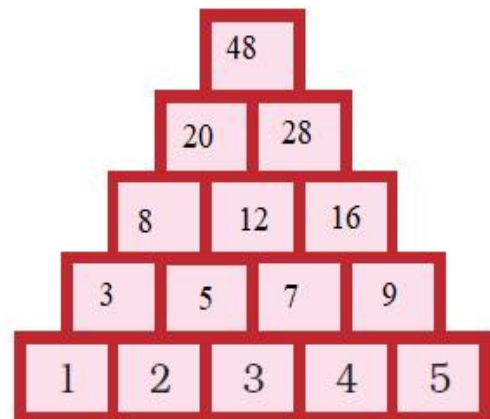
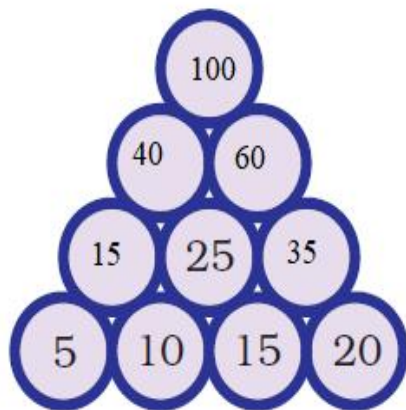
The numbers from 1 to 6 are arranged in the figure below, which add up to 10 in each line.



**Q8.** Using the same rule, complete these number towers.



**Answer:**



### The Same Sum Rule

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



**Q9.** 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 given below:

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

21	+	24	=	45
22	+	23	=	45

1	+	2	+	3	=	6
2	+	3	+	4	=	9
3	+	4	+	5	=	12



Oh! The sum grows by 3 each time.

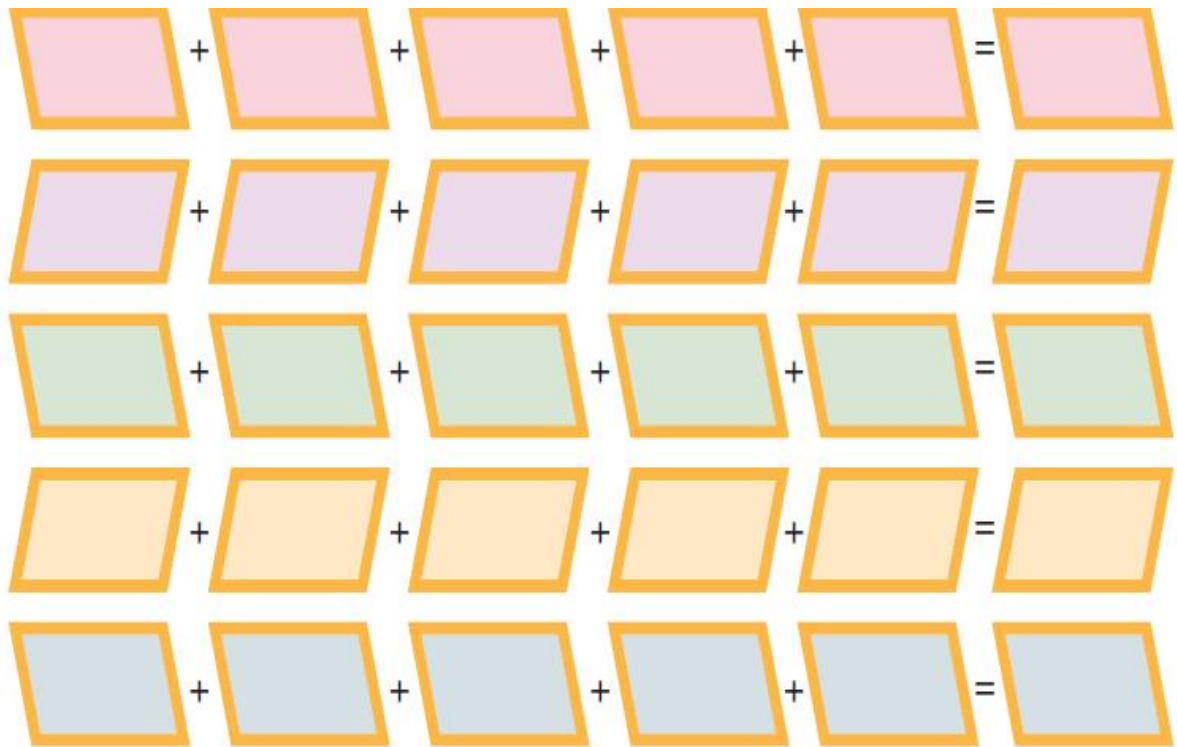


Here, the sum grows by 4 each time.

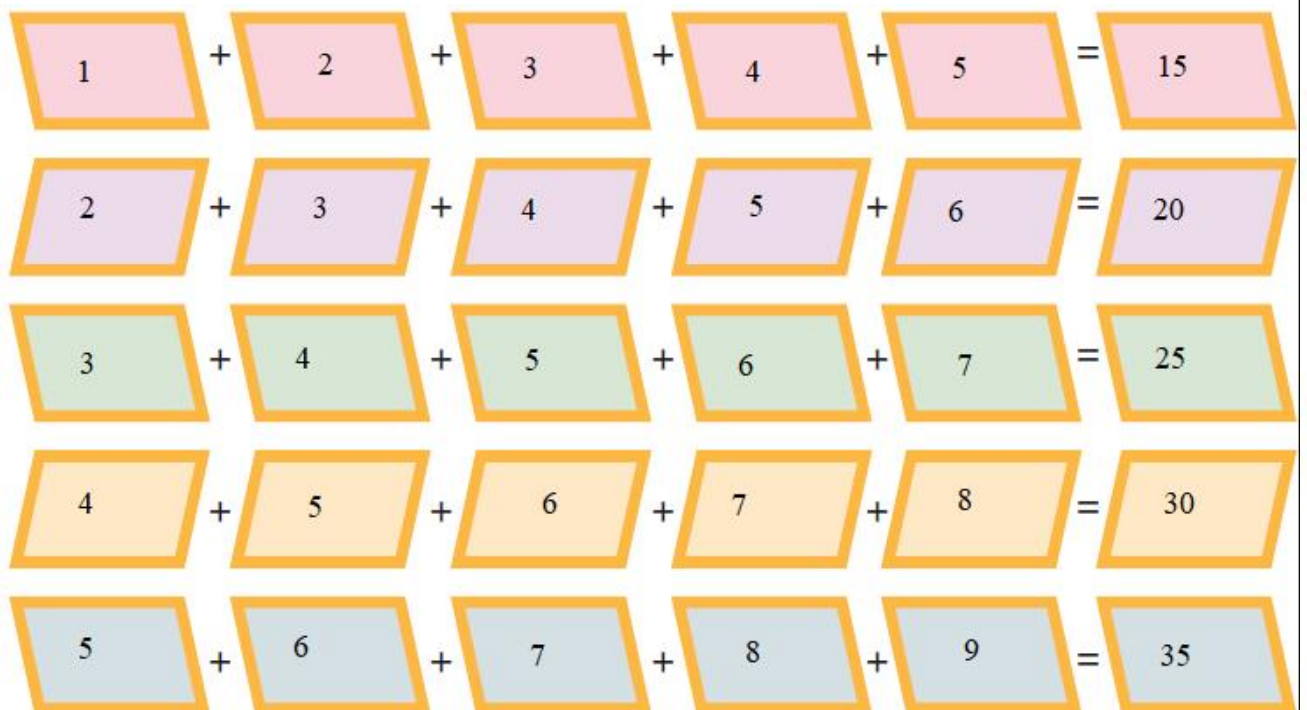
1	+	2	+	3	+	4	=	10
2	+	3	+	4	+	5	=	14
3	+	4	+	5	+	6	=	18



**Q10.** Now, you try to make such a pattern with 5 numbers in order.



**Answer:**

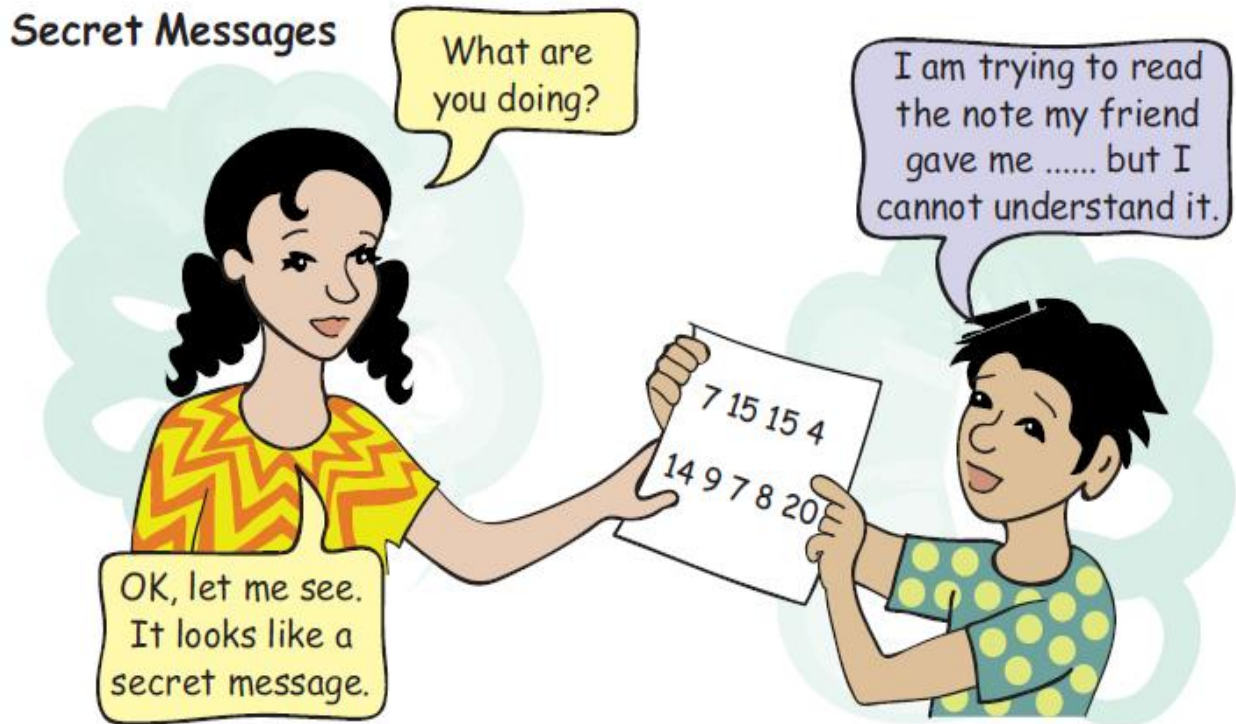


## 5MARK QUESTIONS

### Q1.Does the sum grow by 5 each time?

**Answer:**

Yes, the sum grows by 5 each time.



**Q2. Complete this list of letters and numbers to help you.**

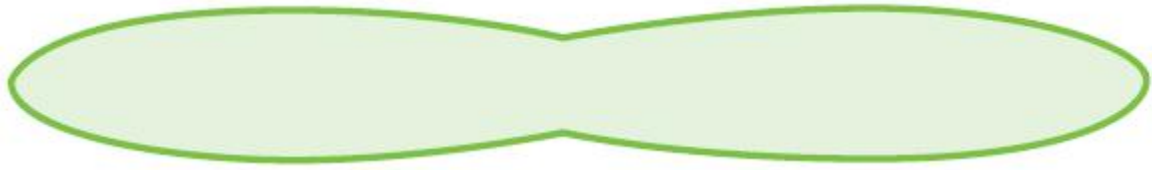
[illegible]

**Answer:**

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
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

**Q3.**Teenu wants to write to his friend ‘Good Morning’.

What will he write by using the same rule?

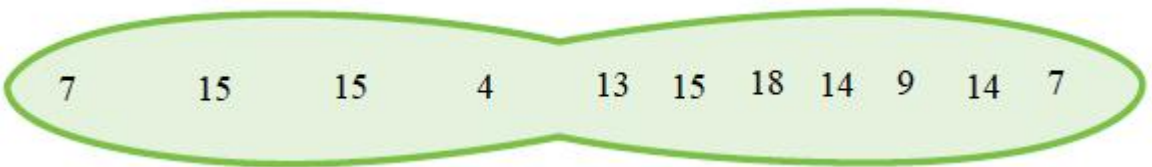


**Answer:**

$$G = 7 \quad O = 15 \quad O = 15 \quad D = 4$$

$$M = 13 \quad O = 15 \quad R = 18 \quad N = 14 \quad I = 9 \quad N = 14 \quad G = 7$$

Hence, Good Morning can be written as follows



7      15      15      4      13    15    18    14    9    14    7

**Q4.**If we change the rule and write 1 in place of ‘B’, 3 in place of ‘D’ and so on, then how will we write ‘let us dance’?



**Answer:**

$$L = 11 \quad E = 4 \quad T = 19$$

$$U = 20 \quad S = 18$$

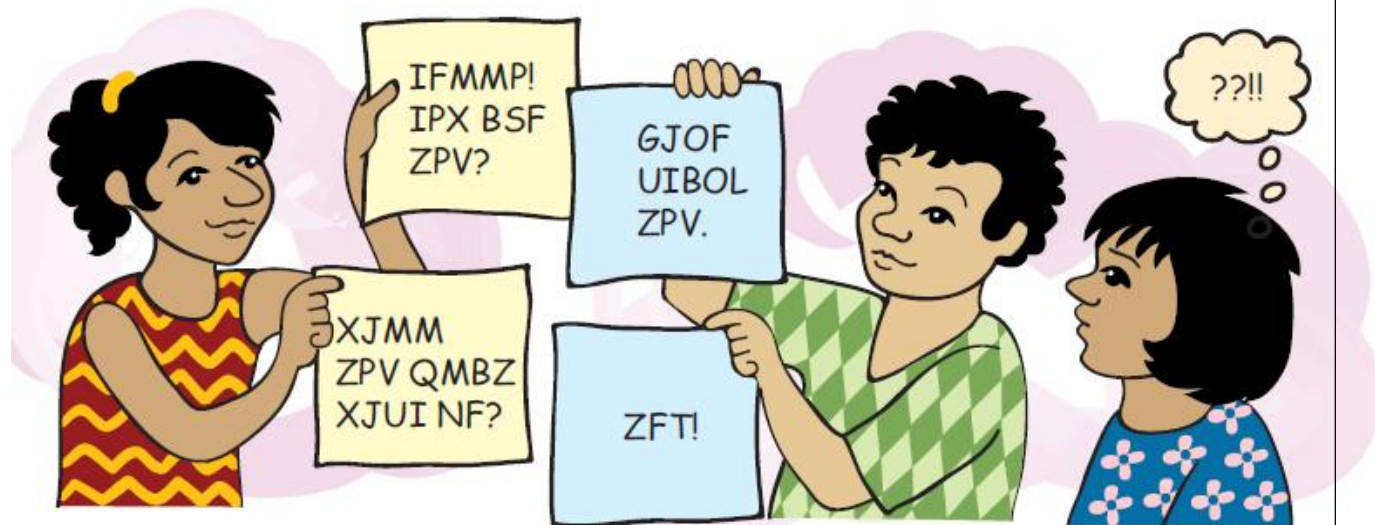
$$D = 3 \quad A = 26 \quad N = 13 \quad C = 2 \quad E = 4$$

Therefore, ‘let us dance’ can be written as follows



11      4      19      20                      18      3    26    13    2      4

## More Secret Messages



**Q5.What was Kahuli's secret message?**

**Answer:**

The new arrangement of letters for the 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, Kahuli's secret message was 'XF BSF GSJFOET', i.e. WE ARE FRIENDS

**Q6.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!'



Hence, the secret message written by Jaggu is – Fine, thank you. Yes!

**Q7. 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.

**Q8. Make different rules and ask your friends to crack the secret message.**

**Answer:**

Let the new rule be – write ‘A’ in the place of ‘C’, ‘B’ in the place of ‘D’ and so on. The new key for this new rule will be as follows:

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’

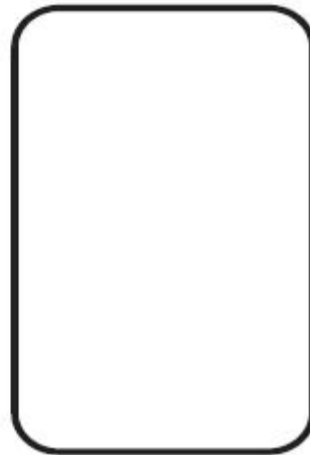
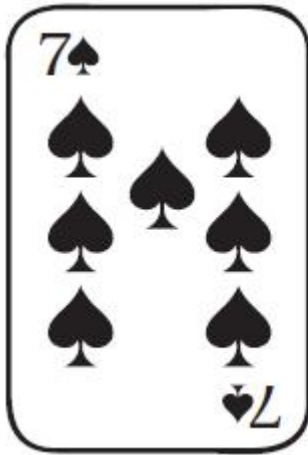
## Upside Down

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



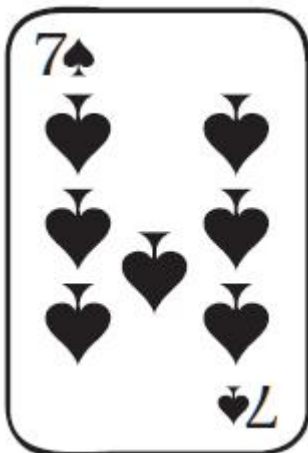


**Q9.** Now, Anisha is playing with this card. Draw what it will look like when upside down.

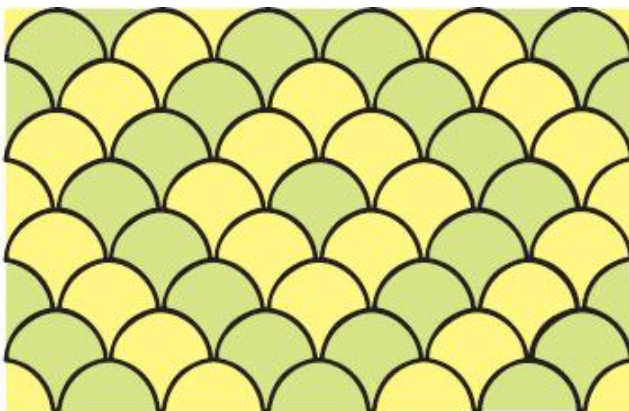


**Answer:**

The card, when made upside down, will look like as shown below:



**Floor Patterns**

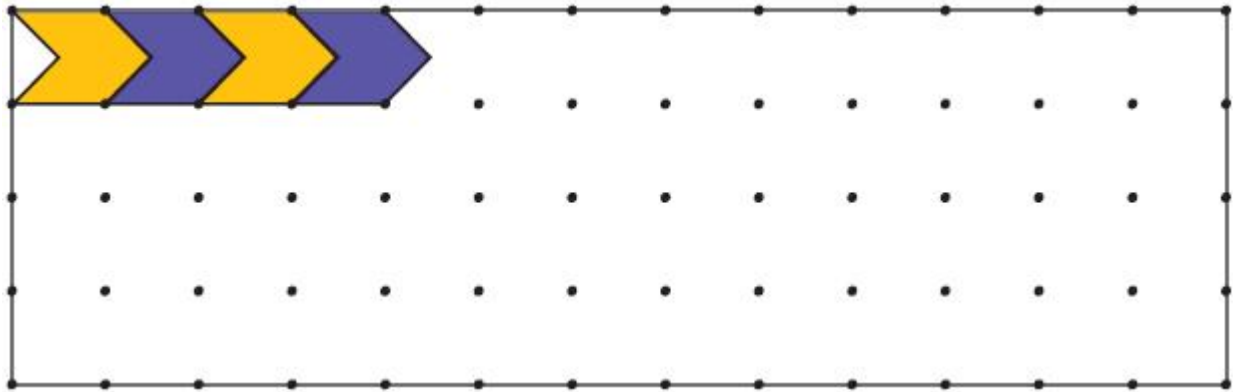


**Q10.** Have you ever seen a floor with tiles of these shapes?

**Answer:**

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

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

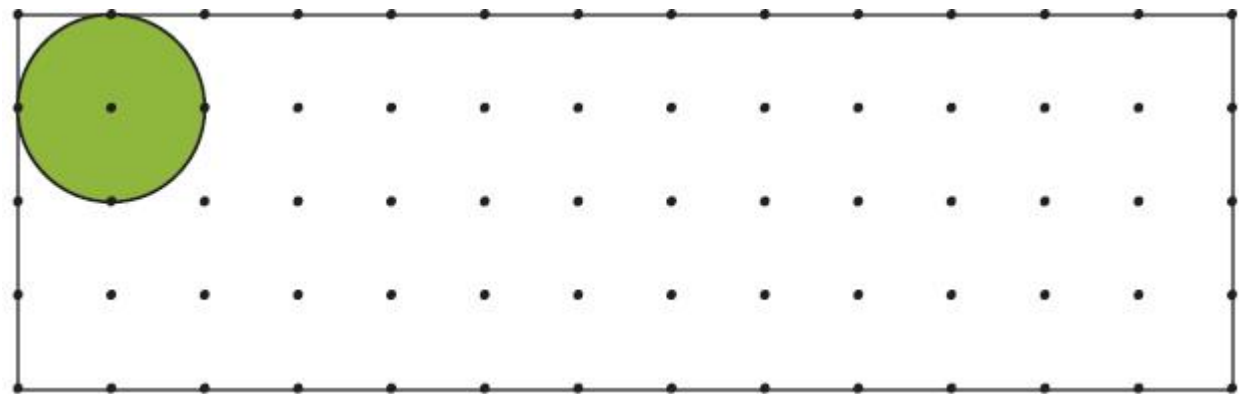


**Answer:**

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.

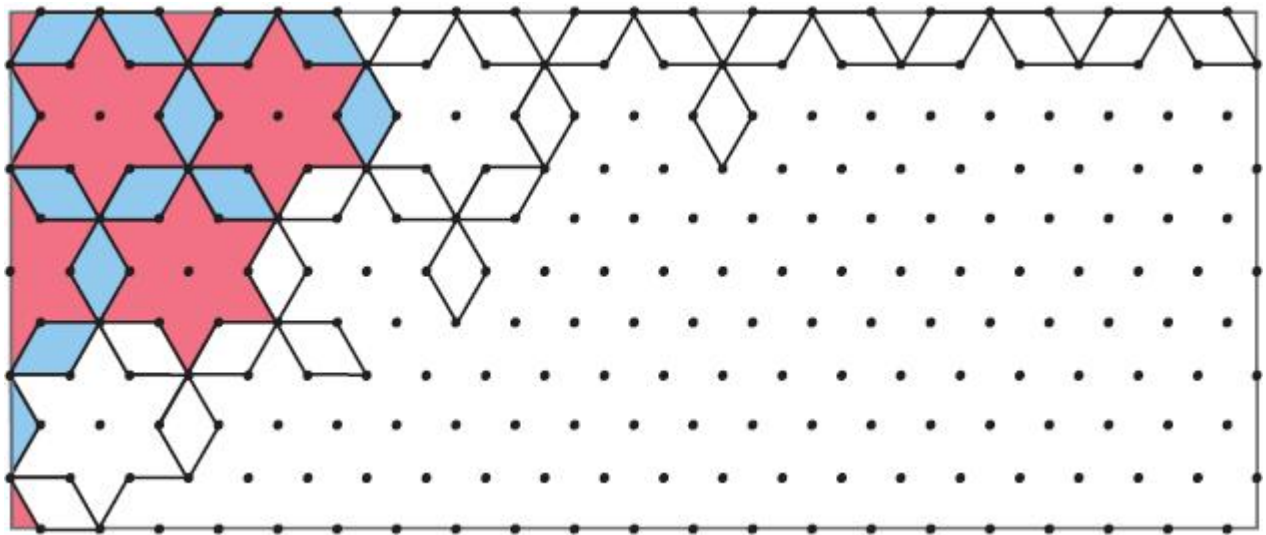


**Answer:**

Do it yourself.

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

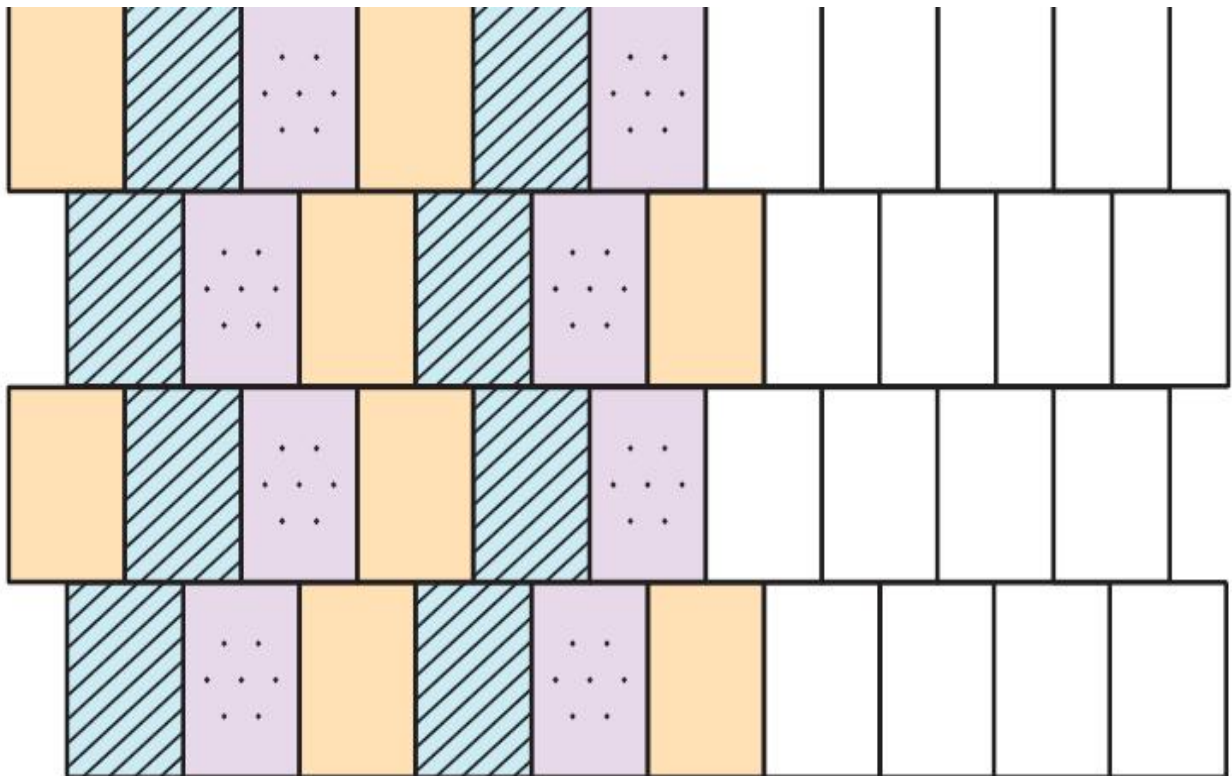
**(c)** Complete this tiling pattern.



**Answer:**

Do it yourself.

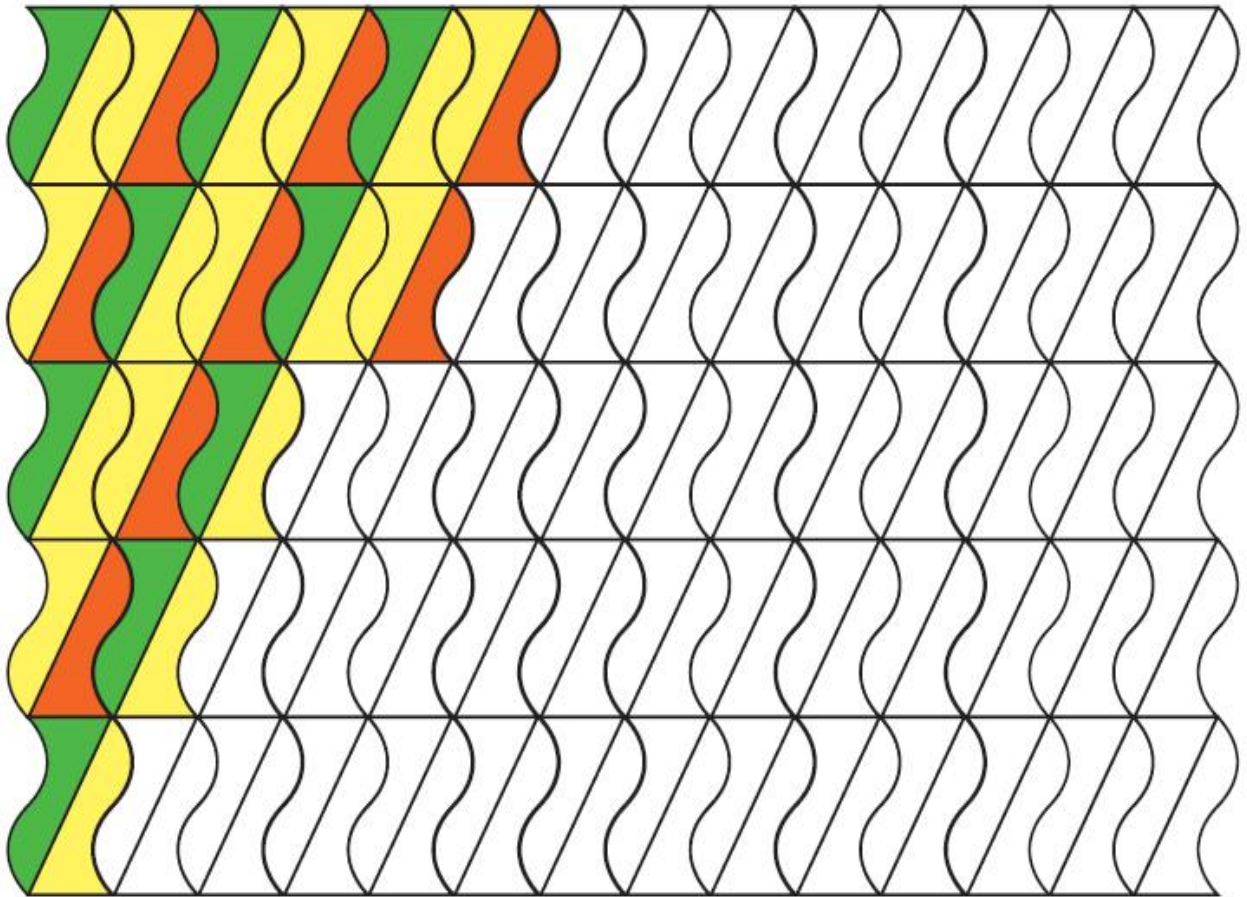
**(d) Ramaiya has made a wall with his blocks. Can you complete this for him?**



**Answer:**

Do it yourself.

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



**Answer:**

Do it yourself.

**Multiple-Choice Questions (MCQs):**

**Q1.What is a pattern?**

- A) A piece of cloth**
- B) A repeated sequence of shapes, colors, or numbers**
- C) A type of dance**
- D) A cooking recipe**

**Answer:** B) A repeated sequence of shapes, colors, or numbers

**Q2.Which of the following is an example of a geometric pattern?**

- A) ABCD**
- B) Red, blue, green, red, blue, green**
- C) 2, 4, 8, 16, 32**
- D) Happy, sad, happy, sad**

**Answer:** C) 2, 4, 8, 16, 32

**Q3.What comes next in the pattern: 5, 10, 15, \_\_, 25?**

- A) 18**
- B) 20**
- C) 21**
- D) 30**

**Answer:** B) 20



**Q4.Which of the following is an example of an ABAB pattern?**

**A) Circle, square, triangle**

**B) Red, blue, red, blue**

**C) 1, 2, 3, 4**

**D) Small, medium, large**

**Answer:** B) Red, blue, red, blue

**Q5.What type of pattern is created when shapes or colors repeat in a regular order?**

**A) Chaotic pattern**

**B) Random pattern**

**C) Geometric pattern**

**D) Unpredictable pattern**

**Answer:** C) Geometric pattern

**Fill in the Blanks:**

**Q1.**A pattern helps us predict what comes \_\_\_\_\_ in a sequence.

**Answer:** next

**Q2.**In an AABB pattern, each pair consists of \_\_\_\_\_ elements.

**Answer:** identical

**Q3.**The sequence 3, 6, 9, \_\_, 15 follows a \_\_\_\_\_ pattern.

**Answer:** multiples of 3

**Q4.**Patterns can be found in \_\_\_\_\_, numbers, and even behaviors.

**Answer:** shapes

**Q5.**A sequence of colors such as red, blue, green, red, blue, green is an example of a \_\_\_\_\_ pattern.

**Answer:** repeating