

CHAPTER – 10

PLAY WITH PATTERNS

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Question 1: Look around you and list three things in which you find some pattern. _____

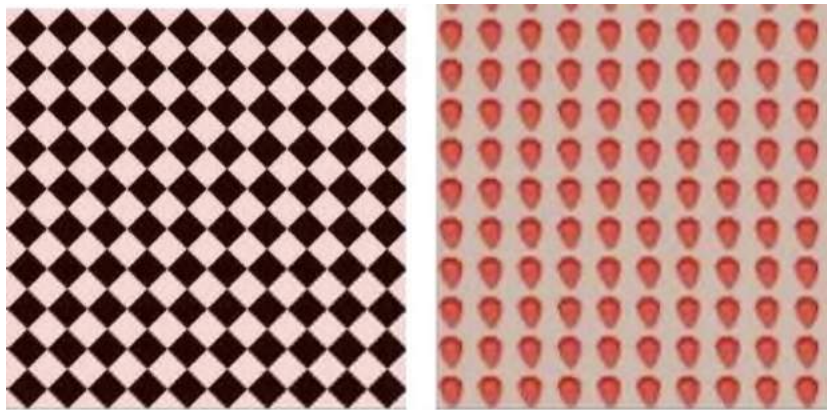
Answer:

I can find patterns on the tiles in my bathroom, my mother's saree, and my friend's shirt.

***Disclaimer:** The answer may vary from student to student depending on their observations. It is highly recommended that the student writes the answers on their own. The answer provided here is for reference only.*



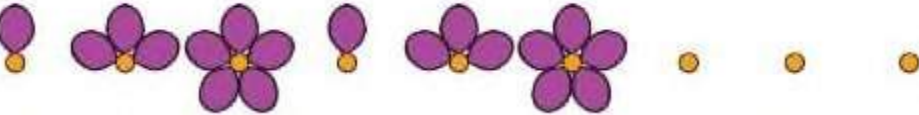


Question 2: Draw some patterns which you have found around yourself.

Answer:



***Disclaimer:** The answer may vary from student to student. The answer provided here is for reference only.*

Question 1: Practice Time • Given below are some patterns. Figure out the rule for each and continue the pattern.

- (a) 
- (b) 
- (c) 
- (d) 
- (e) 

(f) Morning, afternoon, evening, night, morning, _____.....

Answer:

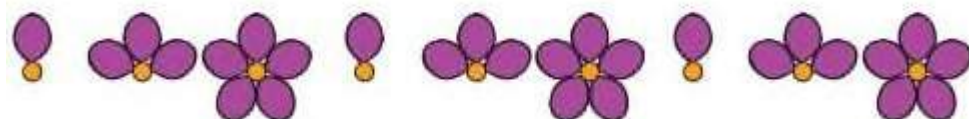
(a) Rule: There is one red pot after every blue pot.



(b) Rule: There is a **B** after every two **A**.



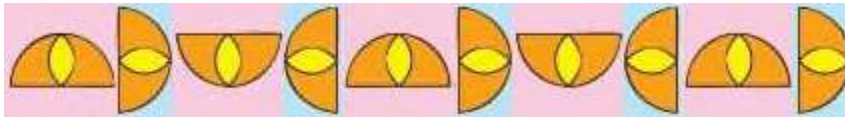
(c) Rule: First 3 images are repeated in the pattern.



(d) Rule: The blue triangle in the square changes its position in an anti-clockwise direction. The same pattern of first 4 images is repeated after that.



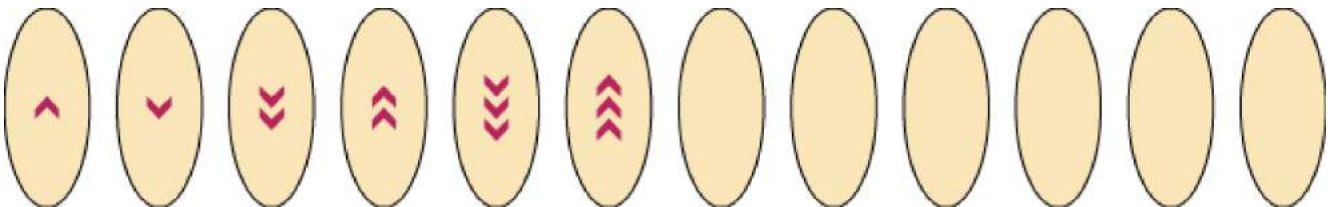
(e) Rule: The pattern is moving in a clockwise direction. The same pattern of first 4 images is repeated after that.



(f) Rule: The four parts of the day are repeated. Morning, afternoon, evening, night, morning, afternoon, evening, night.

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Question 1: Growing Patterns

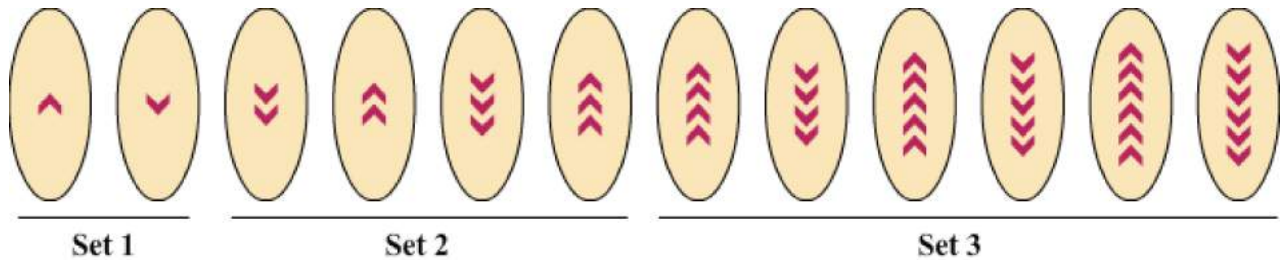


Can you see the rule and continue the pattern?

Answer:

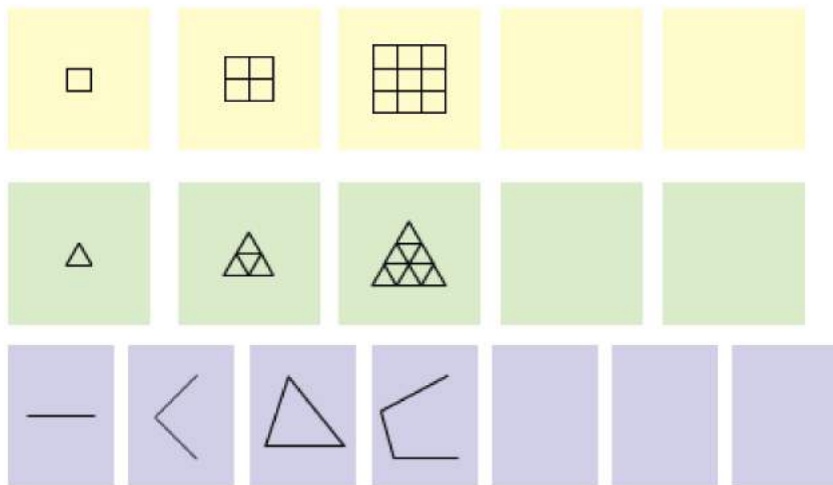
In 1st image, there is only 1 arrow head pointing in the upward direction. In 2nd image, there is only 1 arrow head and is pointing in the downward direction. In 3rd image, there are only 2 arrow heads pointing in the upward direction. In 4th image, there are only 2 arrow heads pointing in the downward direction.

Similarly, the arrowheads become 3 in 5th and 6th image, pointing upward and downward alternately. So, in 7th and 8th image of the pattern, there will be 4 arrowheads, pointing upward and downward alternately.

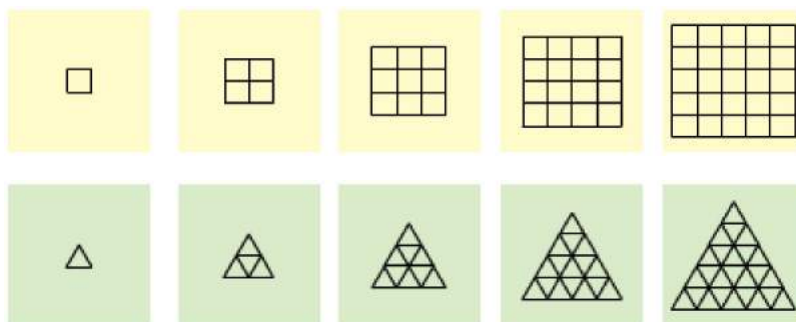


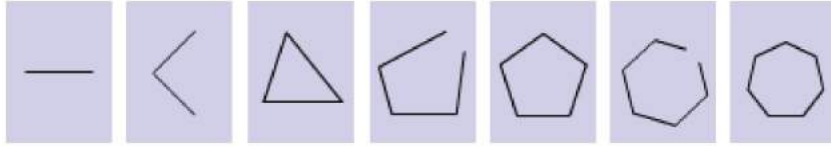
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Question 1: Try these also.



Answer:





Question 2: My Own Patterns • Here is your space to make your own patterns:

(i)

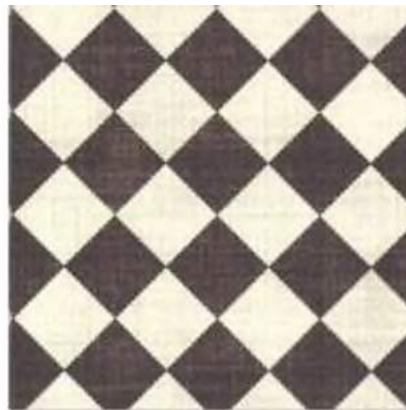
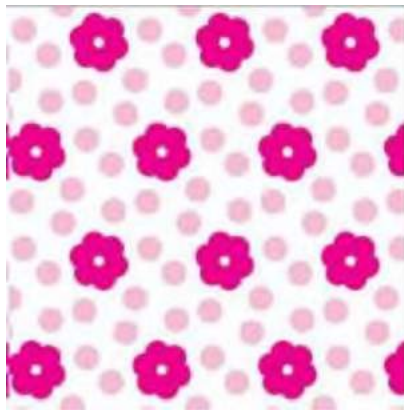
(ii)

(iii)

(iv)

Answer:

Some of the patterns are given below for reference:



Disclaimer: *The patterns may vary from student to student. It is highly recommended that the student prepares the answer on their own.*

Question 3: Ask your friends to continue the patterns made by you. **Number Patterns** We have made some patterns with pictures. We can make patterns with numbers too. Like 21, 41, 61, 81, 101, You know the next number, don't you? This is a growing pattern. It can go on and on. 21, 41, 61, 81, 101, 121, 141, 161,

Answer:

21, 41, 61, 81, 101, 121, 141,
161, 181, 201, 221, 241, 261, 281, 301.....

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Question 1: A Look for the rules and continue these growing patterns: (a) 51, 56, 61, 66, _____, _____ (b) 7, _____, 21, 28, 35, _____, _____ (c) 2, 4, 8, 16, 32, _____, _____, _____ (d) 12A, 13B, 14C, _____, _____.

Answer:

(a) $51 + \underline{5} = 56$ $56 + \underline{5} = 61$ So, we keep adding 5 in the next number to complete the pattern further. 51, 56, 61, 66, 71, 76, 77

(b) $7 \times 1 = 7$

$7 \times 2 = 14$

$7 \times 3 = 21$ So, we keep writing table of 7 to complete the pattern further.
7, 14, 21, 28, 35, 42, 49,

(c) $2 \times 1 = 2$

$2 \times 2 = 4$

$2 \times 4 = 8$

$2 \times 8 = 16$

So, we keep multiplying 2 with the previous answer received to complete the pattern further. 2, 4, 8, 16, 32, 64, 128, 256

(d) Here each number increases by 1 and alphabets are written in their order along with the increasing numbers. 12A, 13B, 14C, 15D, 16E.

Question 2: Look at these growing patterns. Find out what to add to each number to get the next one: (a) 1, 3, 6, 10, _____, _____, _____, _____, _____ (b) 0, 2, 6, 12, _____, _____, _____, _____, _____ (c) 1, 3, 7, 13, _____, _____, _____, _____, _____ (d) 2, 3, 6, 11, 18, _____, _____, _____, _____, _____

Answer:

(a) $1 + 2 = 3$ $3 + 3 = 6$ $6 + 4 = 10$ $10 + 5 = 15$ 1, 3, 6, 10, 15, 21, 28, 36, 45.

(b) $0 + 2 = 2$ $2 + 4 = 6$ $6 + 6 = 12$ $12 + 8 = 20$ 0, 2, 6, 12, 20, 30, 42, 56, 72.

(c) $1 + 2 = 3$ $3 + 4 = 7$ $7 + 6 = 13$ $13 + 8 = 21$ 1, 3, 7, 13, 21, 31, 43, 57, 73

(d) $2 + 1 = 3$ $3 + 3 = 6$ $6 + 5 = 11$ $11 + 7 = 18$ 2, 3, 6, 11, 18, 27, 38, 51, 66, 83.

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Question 1: Now you also make your own secret messages.

Answer:

4 I 5 L 4 O 5 V 4 E 5 M 4 A 5 T 4 H 5 S 4

Disclaimer: The answer may vary from student to student. It is highly recommended that the student prepare their answer on their own.

Question 1: Even and Odd Number Patterns

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Half these numbers are in yellow. What patterns do you see in these numbers? Continue the same pattern and fill in the blanks: 96, 98, _____, 102, _____, _____, _____, _____. How far can you continue this pattern? These numbers have a special name. They are called **even** numbers. Do any of these even numbers end with 3 or 5? What do even numbers end with? Look at the pattern of numbers in blue. Continue the pattern and fill in the blanks: 99, 101, _____, 105, 107, _____, _____. What do the numbers in blue end with? All numbers that end with 1, 3, 5, 7 or 9 are called **odd** numbers. Write all odd numbers between 400 and 410.

_____ Write all even numbers between 155 and 165.

_____ If we add 1 to any odd number we get an _____ (even/odd) number. If we add 1 to any even number we get an _____ (even/odd) number. What do you get if you add an even number to an odd number?

Answer:

All these numbers have either 0, 2, 4, 6 or 8 at their units place. 96, 98, 100, 102, 104, 106, 108, 110, 112.....

This can be continued without any end.

No, none of these even numbers end with 3 or 5.

Even numbers end with 2, 4, 6, 8 or 0. 99, 101, 103, 105, 107, 109, 111, 113.....

Numbers in blue end with 1, 3, 5, 7 or 9.

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Question 1: Names in an Order Adil has to arrange this list so that the names starting with A come first and then come those with B, C, D and so on. Number these names in the order in which they will come. Sharada

Mahadevan

Tsering

Adil

Gurinder

Baichung

Harsha

Raja

Narayan

Kavita

Warsha

Elvis

Jalaj

Answer:

Sharada 11

Mahadevan 8

Tsering 12

Adil 1

Gurinder 4

Baichung 2

Harsha 5

Raja 10

Narayan 9

Kavita 7

Warsha 13

Elvis 3

Jalaj 6

Question 2: Which of the following names have the same pattern? Mark ✓. Harsh, Anna, Kanak, Munna, Ongbi

Answer:

Harsh, Anna, Kanak, Munna, Ongbi ✓ ✓