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Changing your Tomorrow

SESSION	**: 13**
CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 18**
CHAPTER NAME	**: PATTERNS**
SUBTOPIC	**: INTRODUCTION OF PATTERNS, GEOMETRICAL PATTERNS AND NUMBER PATTERN, EX-18 A**

LEARNING OBJECTIVE

- **Enable the students to understand about the geometric pattern and number pattern.**

PATTERNS

The arrangement in which colours, designs, shapes or numbers are arranged according to a rule is called **pattern**.

The pattern consisting of colours, designs or shapes is called a **geometrical pattern**.

The pattern consisting of numbers is called a number **pattern**.

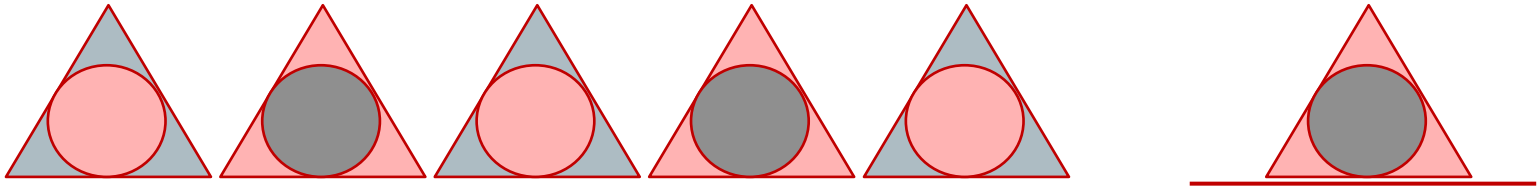
PATTERNS

REVISION

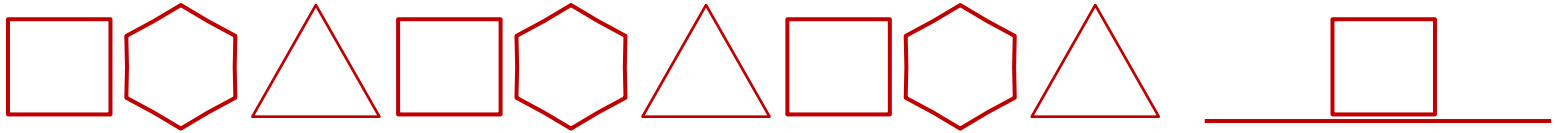
1. Complete the following patterns by drawing the figure that should come next.

(a)

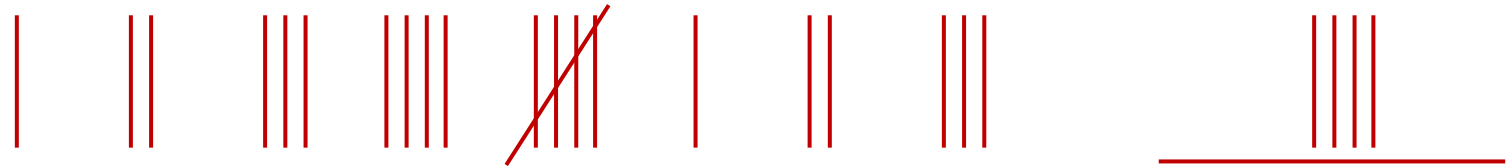
(b)



(c)



(d)



PATTERNS

REVISION

1. Complete the following patterns by drawing the figure that should come next.

(e)  

(f)

A	AB	ABC	**ABCDE**
ABCD	ABCDE		**F**

(g)

AZ	BY	CX	**FU**
DW	EV		

(h)

AC	BD	EG	**MO**
FH	IK		
JL			

PATTERNS

REVISION

2. Complete the following number patterns by writing the next number.

(a) 100, 90, 80, **60**, 70,

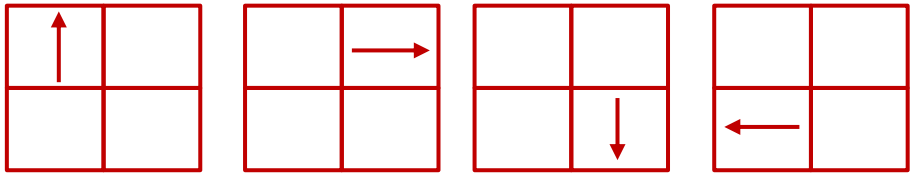
(b) 160, 80, 40, **10**, 20,

PATTERNS

In a geometric pattern, one can easily guess the next figure.

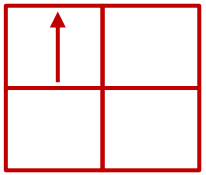
EXAMPLE - 1

What will be the next unit of the pattern given below



In the above pattern, arrow is shifting to the next block. At the same time, arrow is also Turing in the clock-wise direction.

Therefore, the next unit will be

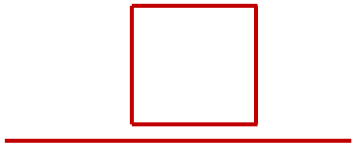


PATTERNS

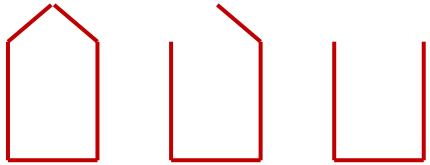
EXAMPLE - 2

Observe the pattern given below and draw the figure that should come next.

(a) 



We are adding lines one-by-one in an anticlockwise direction. Therefore, the next figure should be

(b) 

We are removing lines one by one in a clockwise direction. Therefore, next figure should be

(c) 

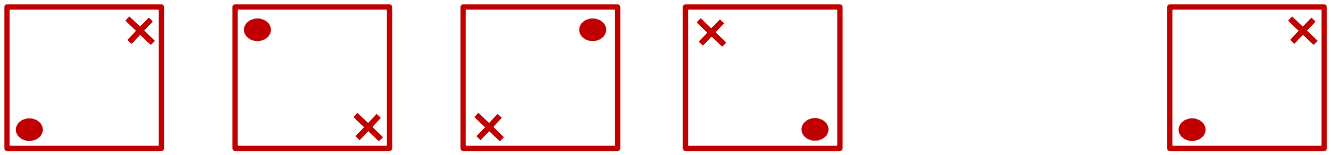
Letter A is being rotated in a clockwise direction. Therefore, the next figure should be

PATTERNS

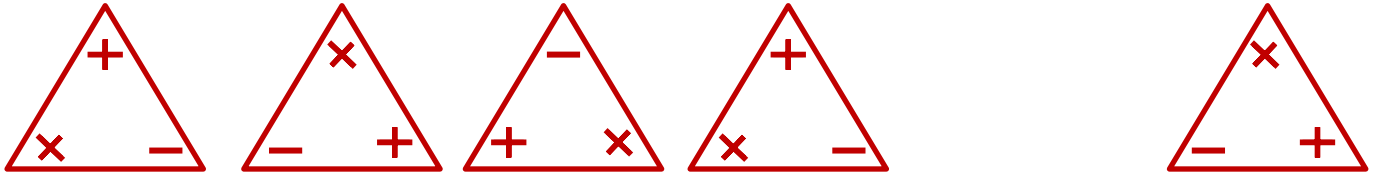
EXERCISE – 18(A)

1. Observe the given pattern and complete their last figures.

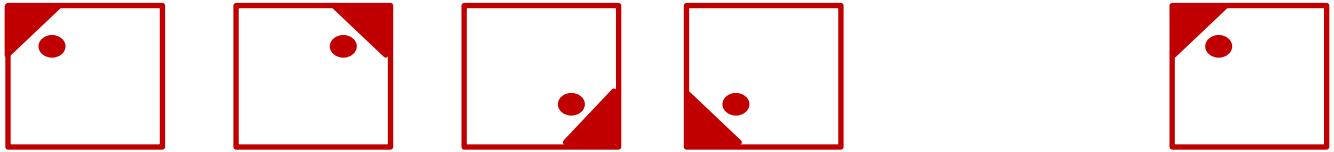
(a)



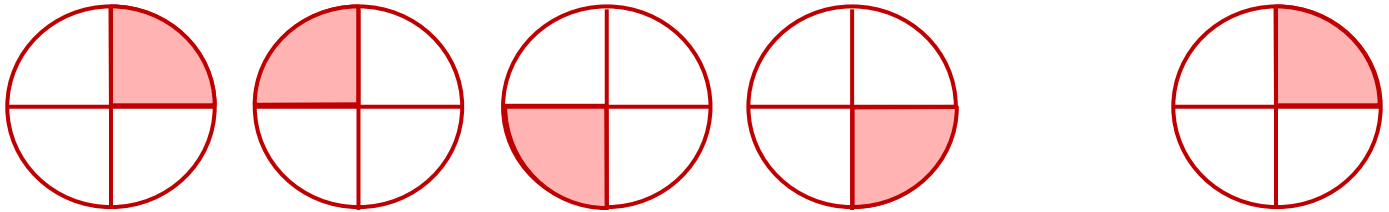
(b)



(c)



(d)



LEARNING OUTCOME:

Students are able to understand about the geometric pattern and number pattern.

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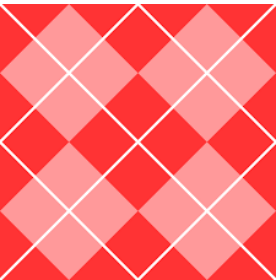
SESSION	**: 14**
CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 18**
CHAPTER NAME	**: PATTERNS**
SUBTOPIC	**: PROGRESSIVE PATTERNS, PROGRESSIVE GEOMETRICAL PATTERNS AND PROGRESSIVE NUMBER PATTERNS, EX-18 B & C**

LEARNING OBJECTIVE

- **Enable the students to understand about the progressive geometrical patterns and progressive number patterns.**

PROGRESSIVE PATTERNS

The patterns which can go on and on, without coming to an end are called progressive patterns. Such **patterns are infinite**.

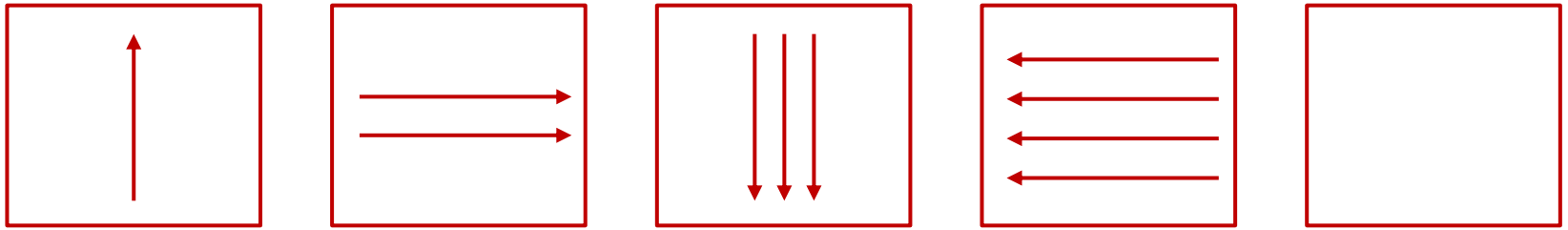


PROGRESSIVE PATTERNS

EXAMPLE - 1

What will be the next two unit of the pattern given below?

(a)



(b)

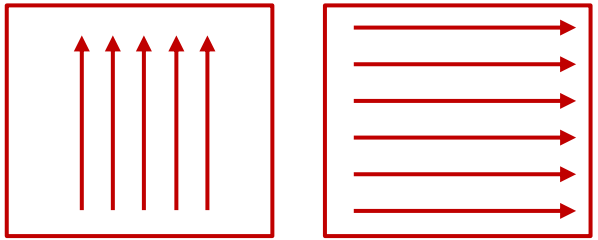
PROGRESSIVE PATTERNS

EXAMPLE - 1

(a)

In pattern (a), we are **increasing the arrow** one by one. Also, the arrow is moving in a **clockwise** direction.

Therefore, the next 2 unit of the pattern will be



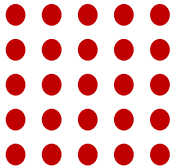
PROGRESSIVE PATTERNS

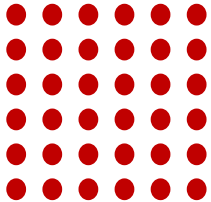
EXAMPLE - 1

(b)

In pattern (b), the number of dots are increasing **one by one in the bottom row**. We see that the number of rows and **columns is also increasing by 1** in the subsequent units.

So, the next unit will have **5 rows** and **5 columns** of **5 dots** each. Similarly, the following unit will have **6 rows** and 6 columns of **6 dots** each and so on.



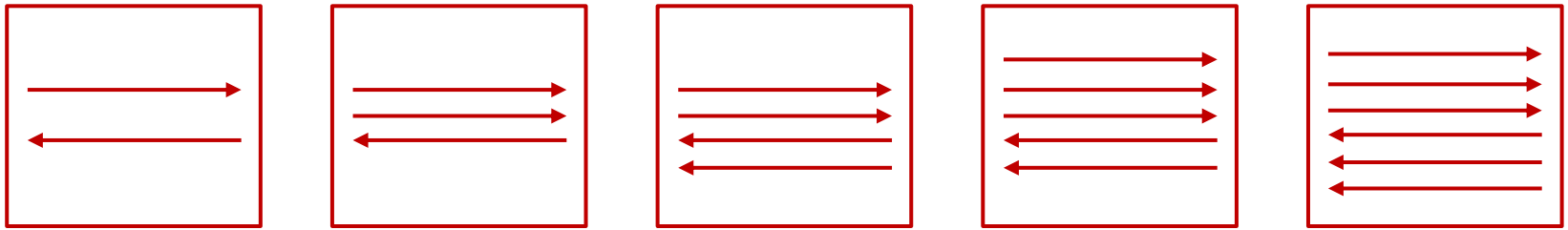


PROGRESSIVE PATTERNS

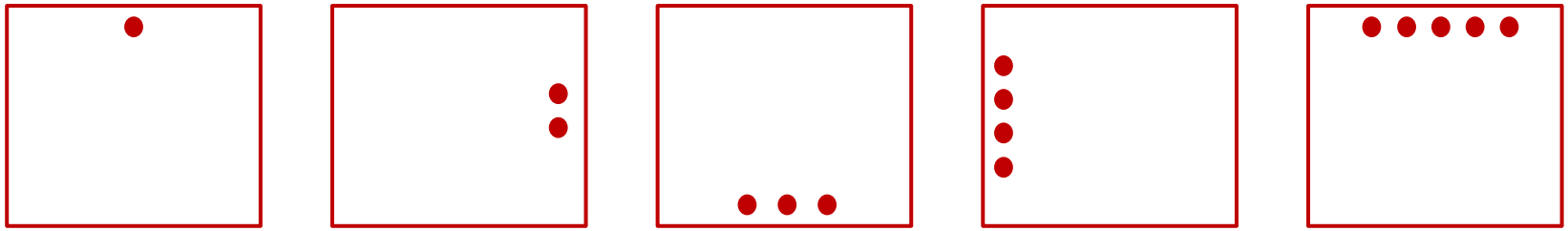
EXERCISE – 18(B)

1. Observe the given pattern and complete their last figures.

(a)



(b)



PROGRESSIVE NUMBER PATTERNS

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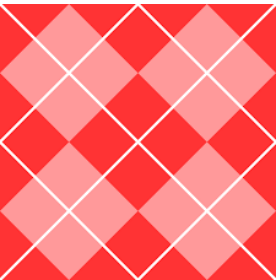
Arrangement of numbers according to a rule is called a **number pattern**.



PROGRESSIVE NUMBER PATTERNS

EXAMPLE - 1

Identify the patterns and write the next two numbers.

(a) 7, 10, 13, 16, 19, _____, _____.

(b) 80, 78, 76, 74, 72, _____,

.

(c) 4, 7, 13, 25, 49, _____, _____.

PROGRESSIVE NUMBER PATTERNS

EXAMPLE - 1

(a)

Each term of the given pattern is obtained by **adding 3** to the **previous number**. So the next two numbers are

19 + 3 = **22** ; 22 + 3 = **25**

Thus the pattern is 7, 10, 13, 16, 19, **22**, **25**

PROGRESSIVE NUMBER PATTERNS

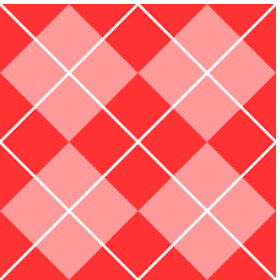
EXAMPLE - 1

(b)

Each term of the given pattern is obtained by **subtracting 2** from the **previous term**. So the next two terms are :

72 – 2 = **70** ; 70 – 2 = **68**

Thus the pattern is 80, 78, 76, 74, 72, **70**, **68**



PROGRESSIVE NUMBER PATTERNS

EXAMPLE - 1

(c)

Each term of the given pattern is obtained by **multiplying the previous term by 2 and ten subtracting 1 from the product.**

$4 \times 2 - 1 = \mathbf{7}$

$7 \times 2 - 1 = \mathbf{13}$

$13 \times 2 - 1 = \mathbf{25}$

$25 \times 2 - 1 = \mathbf{49}$

So the next two terms are

$49 \times 2 - 1 = \mathbf{97}$

$97 \times 2 - 1 = \mathbf{193}$

Thus the pattern is 4, 7, 13, 49, **97**, **193**

PROGRESSIVE NUMBER PATTERNS

EXERCISE – 18(C)

Identify the patterns and write the next two terms.

(a) 1, 5, 9, 13, 17, 21, 25, _____, _____.

(b) 2, 5, 8, 11, 14, 17, 20, _____, _____.

(c) 60, 55, 50, 45, 40, 35, _____, _____.

(d) 56, 50, 44, 38, 32, 26, _____, _____.

(e) 64, 32, 16, 8, 4, 2, _____, _____.

(f) 4, 6, 10, 18, 34, 66, _____, _____.

(g) 2, 5, 11, 23, 47, 95, _____, _____.

(h) 1, 3, 7, 15, 31, 63, _____, _____.

HOME ASSIGNMENT:

- **Complete Exercise – 18 C in your note book.**

LEARNING OUTCOME:

Students are able to understand about the progressive geometrical patterns nad progressive number patterns..

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