

Date: __/__/____

Patterns

Factors and Multiples

(Chapter - 2)

$$\begin{array}{r} 9 \\ \textcircled{3} \overline{) 27} \\ \underline{} \\ 0 \end{array}$$

3 is factor of 27 (factors are limited in no.)
 27 is a multiple of 3. (multiples are infinite)

Number patterns

Numbers are arranged based on predefined rules.

We can figure out rules using known operators:

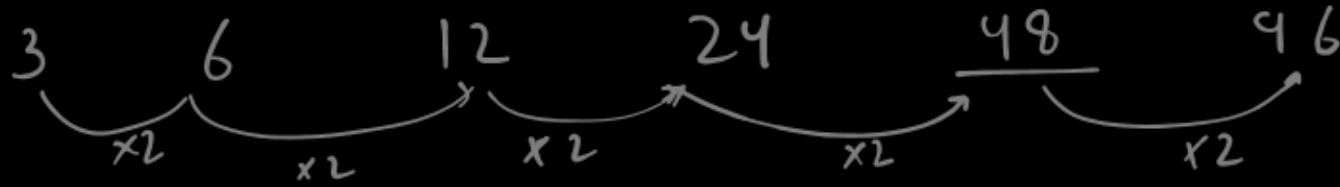
$\left\{ \begin{array}{ll} \text{(i)} & + \\ \text{(ii)} & \times \\ \text{(iii)} & - \\ \text{(iv)} & \div \end{array} \right\}$ for increasing order of numbers.

$\left\{ \begin{array}{ll} \text{(iii)} & - \\ \text{(iv)} & \div \end{array} \right\}$ for decreasing order of numbers.

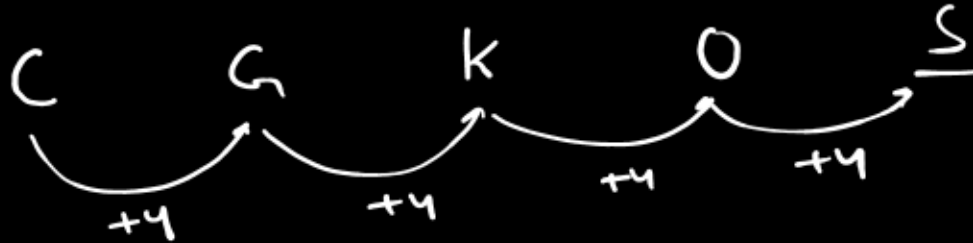
or combination of these operators.

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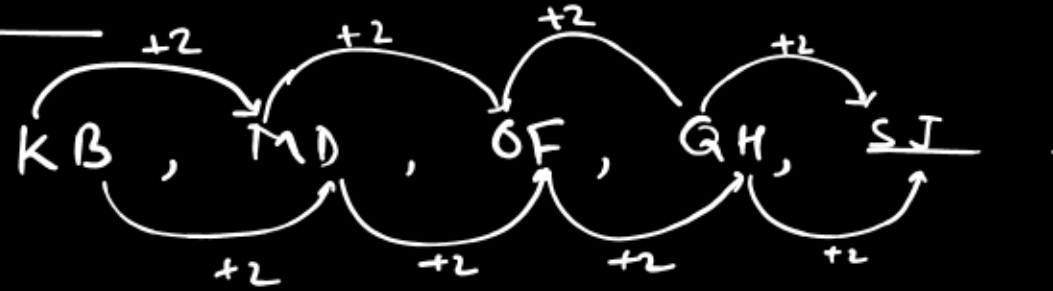
Ex.



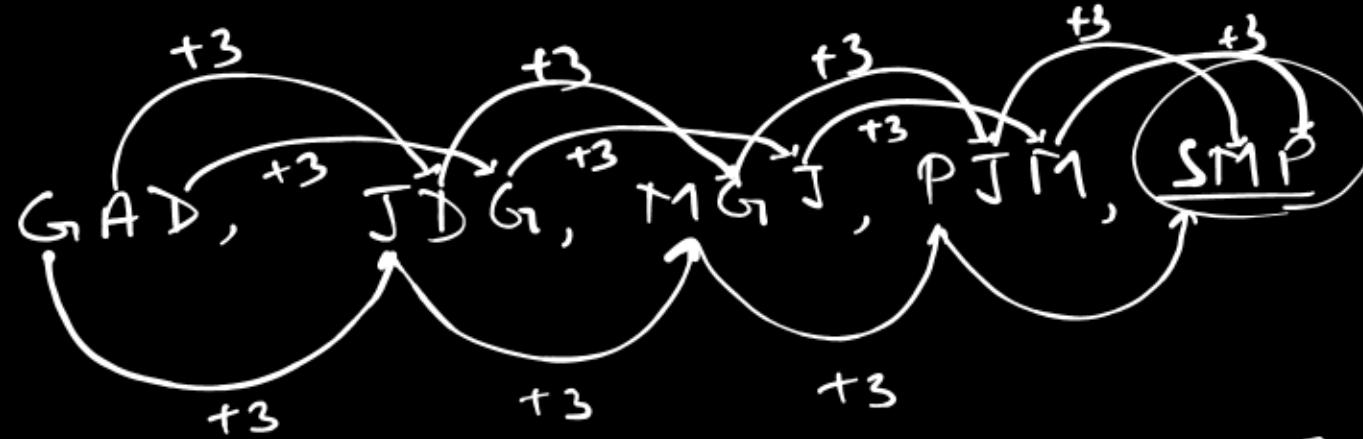
one letter pattern:



• Two letter pattern



• Three letter pattern



$$\left[\begin{array}{l} A \longrightarrow Z \\ Z \longrightarrow A \end{array} \right. \begin{array}{l} \text{alphabetical order.} \\ \text{reverse alphabetical order} \end{array}$$

Mixed pattern

Date: __/__/____

↳ Combination of number/numeral & letter.

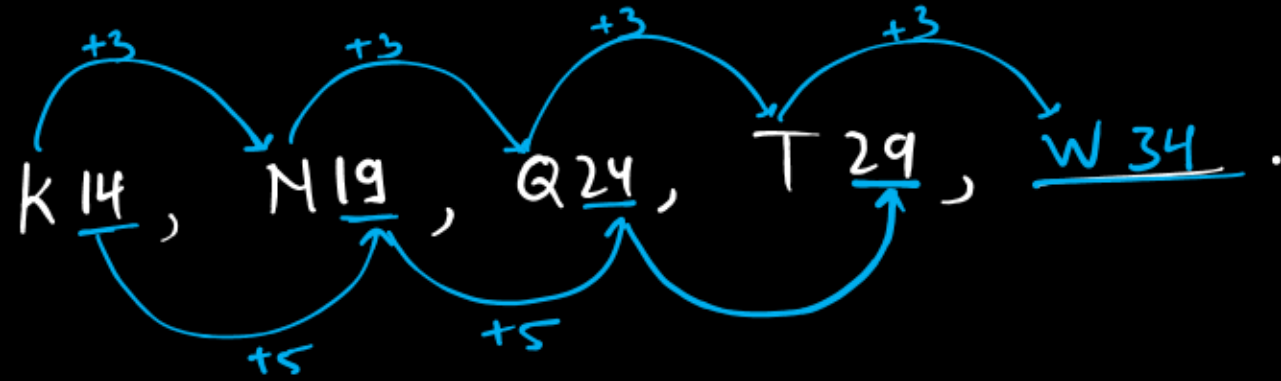


Figure Pattern

Date: __/__/__

Three or more figures.
└─ linked using specific rule.

Figures consists of:

- symbols
- geometrical shapes.
- letters
- numbers

} arranged using specific rule.

Some known logics/method to solve problems on fig. pattern: Date: __/__/____

① Rotation of figure or figure element

↳ Clockwise rotation or anti-clockwise rotation.

② Movement of element(s) inside the figure.

③ Addition/subtraction/deletion of figure elements.

Inserting the missing character

diagonal. Columns

rows

	↓	↓	↓
→	1	.	.
→	.	.	?
→	.	.	.

Finding missing number/letter

matrix

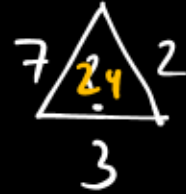
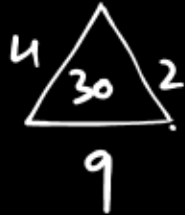
	↓	↓	↓
→	4	× 6	24 ✓
→	5	✓ 3	15 ✓
→	2	9	2 18

$$\begin{array}{r} 2p + 5 = 19 \\ -5 \quad -5 \\ \hline \end{array} \quad \checkmark$$

$$2p = 19 - 5 \quad \checkmark$$

Finding missing character in the given figure.

Date: __/__/____



$$6 + 3 + 5 = \underline{14} \boxed{\times 2} = 28$$

$$7 + 2 + 3 = \underline{12} \times \underline{2} = 24$$

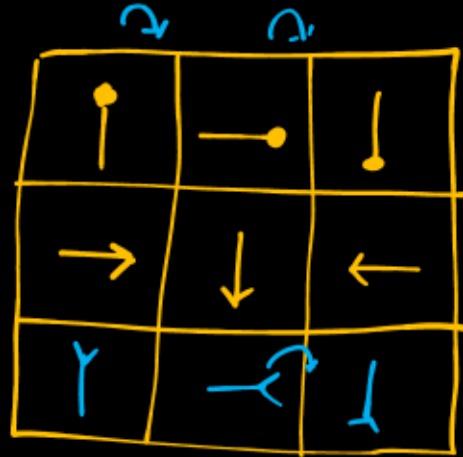
$$4 + 2 + 9 = \underline{15} \boxed{\times 2} = \underline{\underline{30}} \checkmark$$

Figure matrix

Clockwise 90° →

Clockwise 90° →

Clockwise →



Date: __ / __ / ____

1. What will come next in the given alphabetical series?

ABE, FHI, KNM, PTQ, ? UZ

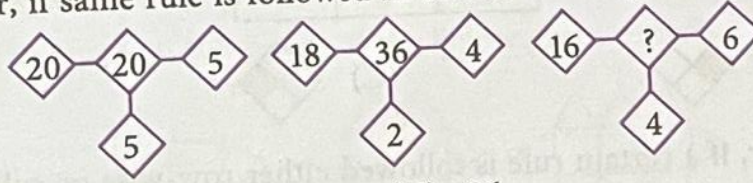
(A) UVY

☒ (B) UZU

(C) UFR

~~(D) LGQ~~

2. Find the missing number, if same rule is followed in all the three figures.



(A) 36

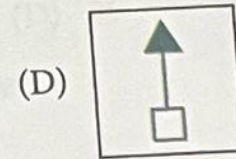
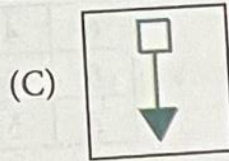
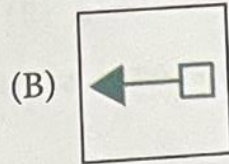
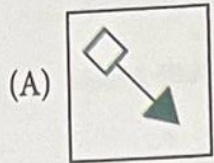
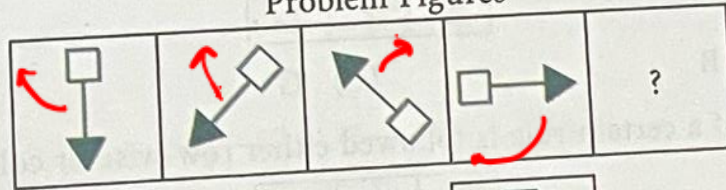
(B) 18

(C) 26

(D) 24

3. Select a figure from the options which will continue the same series as established by the Problem Figures.

Problem Figures



Patterns

1. What will come next in the given alphabetical series?
ARE FHI KNJ

ABE, FHI, KNM, PTQ, ?

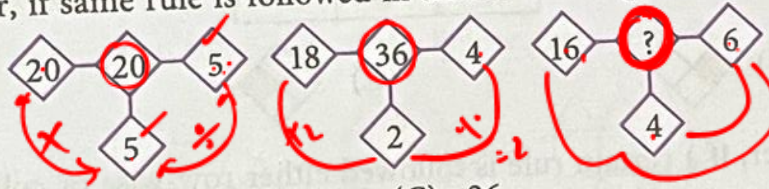
- (A) UVY

- (B) UZU

- (C) UFR

- (D) LGQ

2. Find the missing number, if same rule is followed in all the three figures.



$$\underline{6 \div 4}$$

$$\begin{array}{r} 6 \times 16 \\ \hline 96 \\ \hline \end{array}$$

$$= 6 \times 4 = \underline{\underline{24}}$$

- (A) 36

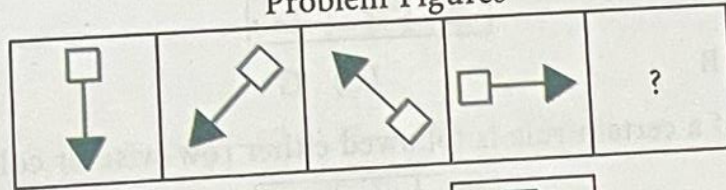
- (B) 18

- (C) 26

- ~~(D)~~ 24

- (A) 36 (B) 18 (C) 26
3. Select a figure from the options which will continue the same series as established by the Problem Figures.

Problem Figures



- (A)
- 
- A square and a triangle are connected by a line. The square is at the top left, and the triangle is at the bottom right. The line connects the bottom-right corner of the square to the top-left corner of the triangle.

- (B) 

- (C) 

- (D) 

4. Which of the following options will continue the given series?
23Z, 28X, 35V, 44T, 55R, ?

- (A) 66U (B) 68P (C) 68U (D) 65P

5. Study the pattern of numbers printed on the following piece of paper. How many numbers will be there in Row 13?

Row	Number
1	1
2	2 3 4
3	5 6 7 8 9
4	10 11 12 13 14 15 16

- (A) 19 (B) 21 (C) 23 (D) 25

6. What will come next in the given series?

JM6, KK8, LI10, MG12, ?

- (A) PE14 (B) OD16 (C) NE14 (D) NE16

7. Find the missing number, if a certain rule is followed either row-wise or column-wise.

15	11	19
6	7	5
8	5	6
98	82	?

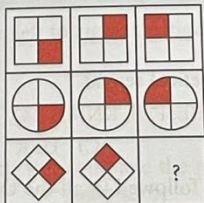
- (A) 121 (B) 101 (C) 110 (D) 108

8. Find the missing number.

5, 17, 53, 161, 485, ?

- (A) 1256 (B) 1457 (C) 1620 (D) 1718

9. Find the missing figure in the given figure matrix.



- (A) (B) (C) (D)

10. Find the missing character, if a certain rule is followed either row-wise or column-wise.

6	3	8
11	4	12
E	?	D

- (A) F (B) B (C) G (D) A

11. Find the missing number, if a certain rule is followed either row-wise or column-wise.

6	4	40
8	4	?
3	5	32

- (A) 84 (B) 48 (C) 96 (D) 104

$$\begin{array}{r} 485 \\ \times 3 \\ \hline 1455 \\ + 2 \\ \hline 1457 \end{array}$$

4. Which of the following options will continue the given series?
23Z, 28X, 35V, 44T, 55R, 1

(A) 66U

(B) 68P

(C) 68U

(D) 65P

5. Study the pattern of numbers printed on the following piece of paper. How many numbers will be there in Row 13?

Row	Number
1	1
2	2 3 4
3	5 6 7 8 9
4	10 11 12 13 14 15 16

(A) 19

(B) 21

(C) 23

(D) 25

6. What will come next in the given series?

JM6, KK8, LI10, MG12, N

(A) PE14

(B) OD16

(C) NE14

(D) NE16

7. Find the missing number, if a certain rule is followed either row-wise or column-wise.

15	11	19
6	7	5
8	5	6
98	82	?

(A) 121

(B) 101

(C) 110

(D) 108

8. Find the missing number.

5, 17, 53, 161, 485, ?

(A) 1256

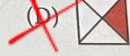
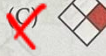
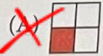
(B) 1457

(C) 1620

(D) 1718

9. Find the missing figure in the given figure matrix.

		?



10. Find the missing character, if a certain rule is followed either row-wise or column-wise.

6	3	8
11	4	12
E	?	D

(A) F

(B) B

(C) G

(D) A

11. Find the missing number, if a certain rule is followed either row-wise or column-wise.

6	4	40
8	4	?
3	5	32

48

(A) 84

(B) 48

(C) 96

(D) 104

12. Find the missing number, if same rule is followed in all the three figures.



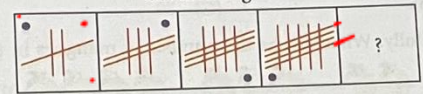
- (A) 6 (B) 7 (C) 9 (D) 5

13. Select a figure from the options which will replace the '?' in the given figure to complete the pattern.



- (A) (B) (C) (D)

14. Select a figure from the options which will continue the same series as established by the Problem Figures.



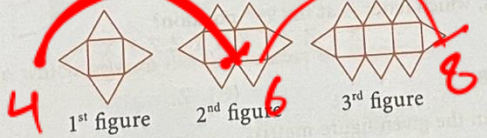
- (A) (B) (C) (D)

15. Which of the following figures will complete the pattern in the given figure?



- (A) (B) (C) (D)

16. How many triangles will be there in 10th figure of the below given series?



- (A) 10 (B) 14 (C) 22 (D) 24

17. Find the missing number.

91, 82, 75, 70, ?, 66

- (A) 64 (B) 67 (C) 66 (D) 61

18. Select the number from the options that will complete the given number pattern.

21, 20, 18, 15, 11, ?

- (A) 5 (B) 7 (C) 6 (D) 3

$$17 + 18 = 35 \div 7 = 5$$

$$6 + 8 = 14 \div 7 = 2$$

$$24 + 18 = 42 \div 7 = 6$$

4 6 8 10 12 14 16 18 20 22
1 1 1 1 1 1 1 1 1
152 10

12. Find the missing number, if same rule is followed in all the three figures.



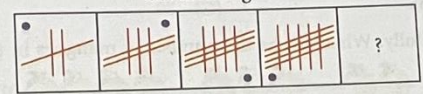
- (A) 6 (B) 7 (C) 9 (D) 5

13. Select a figure from the options which will replace the '?' in the given figure to complete the pattern.



- (A) (B) (C) (D)

14. Select a figure from the options which will continue the same series as established by the Problem Figures.



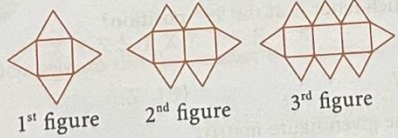
- (A) (B) (C) (D)

15. Which of the following figures will complete the pattern in the given figure?



- (A) (B) (C) (D)

16. How many triangles will be there in 10th figure of the below given series?



- (A) 10 (B) 14 (C) 22 (D) 24

17. Find the missing number.

91, 82, 75, 70, ?, 66

- (A) 64 (B) 67 (C) 66 (D) 61

18. Select the number from the options that will complete the given number pattern.

21, 20, 18, 15, 11, ?

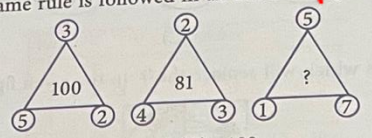
- (A) 5 (B) 7 (C) 6 (D) 3

91
-11

19. What is the next number in the given number pattern?
 3, 4, 7, 12, 19, ?

- (A) 30 (B) 28 (C) 29 (D) 32

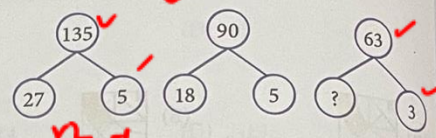
20. Find the missing number, if same rule is followed in all the three figures.



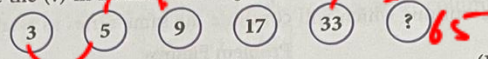
- (A) 150 (B) 210 (C) 180 (D) 169

21. Find the missing number, if same rule is followed in all the three figures.

- (A) 21 (B) 18 (C) 15 (D) 9

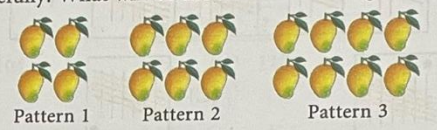


22. Which number will replace the (?) in number series given below:



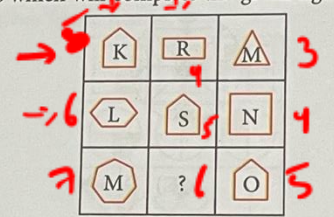
- (A) 63 (B) 65 (C) 79 (D) 81

23. Study the given pattern carefully. What will be the number of mangoes in pattern 64?



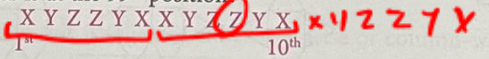
- (A) 184 (B) 130 (C) 149 (D) 200

24. Select a figure from the options which will complete the given figure matrix.



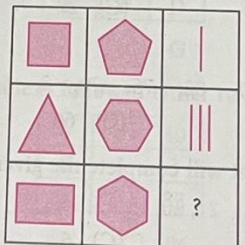
- (A) T (B) T (C) U (D) U

25. If the pattern continues, which letter is at the 99th position?



- (A) X (B) Y (C) Z (D) Can't be determined

26. Find the missing figure in the given figure matrix.



P1 $\times 2 + 2 \rightarrow 4$
 P2 $\rightarrow 6$
 P3 $\rightarrow 8$
 P4 $\rightarrow 10$
P64

$(1 \times 2 + 2) = 4$
 $(2 \times 2 + 2) = 6$
 $(3 \times 2 + 2) = 8$

$64 \times 2 + 2 = 130$

$10 \times 10 = 100 = 10^2$
 $11 \times 11 = 121$

$12 \times 12 = 144$
 $13 \times 13 = 169$

$$\begin{array}{r} 13 \\ \times 13 \\ \hline 39 \\ 130 \\ \hline 169 \end{array}$$

$9 \times 9 = 81$
 $8 \times 8 = 64$

$7 \times 7 = 49 = 7^2$
 $6 \times 6 = 36 = 6^2$
 $5 \times 5 = 25 = 5^2$

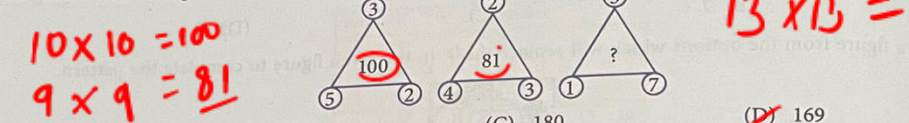
heptagon

19. What is the next number in the given number pattern?

3	4	7	12	19	?
---	---	---	----	----	---

- (A) 30 (B) 28 (C) 29 (D) 32

20. Find the missing number, if same rule is followed in all the three figures.

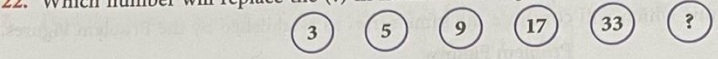


- (A) 150 (B) 210 (C) 180 (D) 169

21. Find the missing number, if same rule is followed in all the three figures.

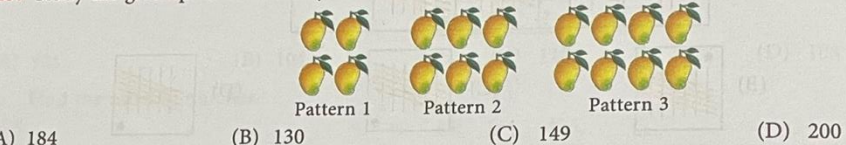


22. Which number will replace the (?) in number series given below?



- (A) 63 (B) 65 (C) 79 (D) 81

23. Study the given pattern carefully. What will be the number of mangoes in pattern 64?



24. Select a figure from the options which will complete the given figure matrix.

K	R	M
L	S	N
M	?	O

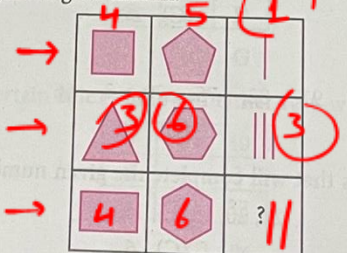
- (A) (B) (C) (D)

25. If the pattern continues, which letter is at the 99th position?



- (A) X (B) Y (C) Z (D) Can't be determined

26. Find the missing figure in the given figure matrix.



Date: __/__/__

$$\begin{array}{r} 13 \\ \times 13 \\ \hline 169 \end{array}$$

$$\begin{array}{r} 13 \\ \times 13 \\ \hline 39 \\ 130 \\ \hline 169 \end{array}$$

- (A)  (B)  (C)  (D) 

27. Select a figure from the options, which when placed in the blank space of Fig. (X) would complete the pattern.

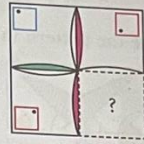
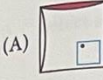
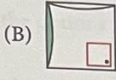
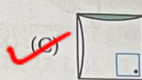
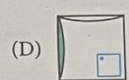
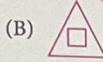
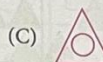
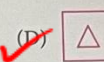


Fig. (X)

- (A)  (B)  (C)  (D) 

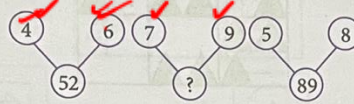
28. Which of the following options will complete the given figure pattern?



- (A)  (B)  (C)  (D) 

29. Find the missing number, if same rule is followed in all the three figures.

$$16 + 36$$

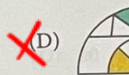


$$25 + 64$$

- (A) 127 (B) 130 (C) 141 (D) 137

30. Which of the following options will complete the pattern in the given figure?



- (A)  (B)  (C)  (D) 

31. A piece of paper is torn. In which column did the number 88 appears?

I	II	III	IV
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18		

- (A) I (B) II (C) III (D) IV

- (A)  (B)  (C)  (D) 

27. Select a figure from the options, which when placed in the blank space of Fig. (X) would complete the pattern.

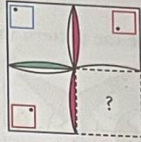
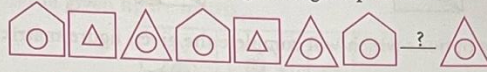


Fig. (X)

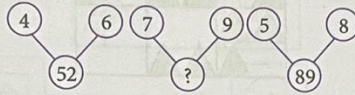
- (A)  (B)  (C)  (D) 

28. Which of the following options will complete the given figure pattern?



- (A)  (B)  (C)  (D) 

29. Find the missing number, if same rule is followed in all the three figures.



- (A) 127 (B) 130 (C) 141 (D) 137

30. Which of the following options will complete the pattern in the given figure?



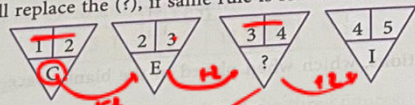
- (A)  (B)  (C)  (D) 

31. A piece of paper is torn. In which column did the number 88 appears?

I	II	III	IV
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18		

- (A) I (B) II (C) III (D) IV

32. Select the option which will replace the (?), if same rule is followed in all the four figures.



(A) F

(B) H

(C) G

(D) D

33. Which of the following figures will complete the pattern in Fig. (X)?

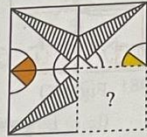
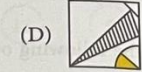
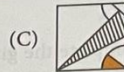
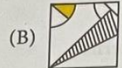


Fig. (X)



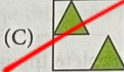
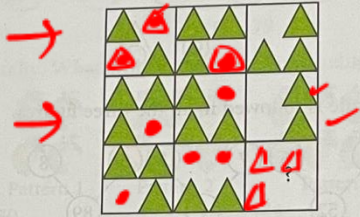
(A)

(B)

(C)

(D)

34. Select the figure from the options which will complete the given figure matrix.



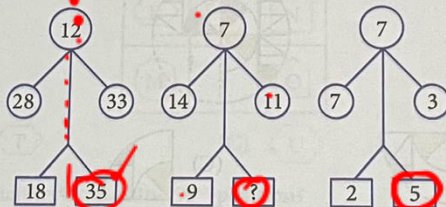
(A)

(B)

(C)

(D)

35. Which number should replace the question mark in the given number bond?



(A) 11

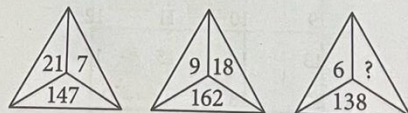
(B) 12

(C) 13

(D) 8

SOLFIMNSICS QUESTIONS

1. Find the missing number, if same rule is followed in all the three figures.



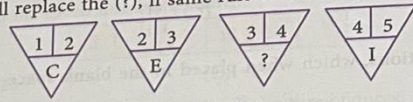
(A) 25

(B) 23

(C) 17

(D) 13

32. Select the option which will replace the (?), if same rule is followed in all the four figures.



(A) F

(B) H

(C) G

(D) D

33. Which of the following figures will complete the pattern in Fig. (X)?

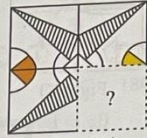
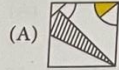


Fig. (X)



(A)



(B)

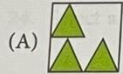
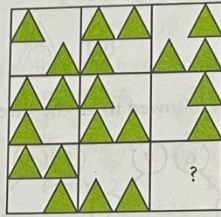


(C)



(D)

34. Select the figure from the options which will complete the given figure matrix.



(A)



(B)

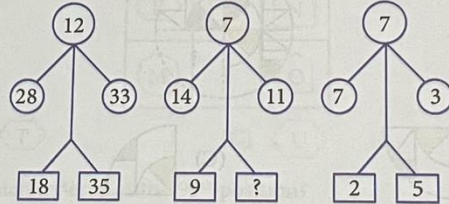


(C)



(D)

35. Which number should replace the question mark in the given number bond?



(A) 11

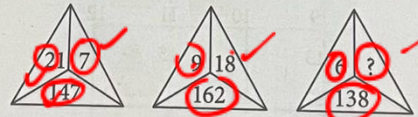
(B) 12

(C) 13

(D) 8

SOLFIMNSICS QUESTIONS

1. Find the missing number, if same rule is followed in all the three figures.



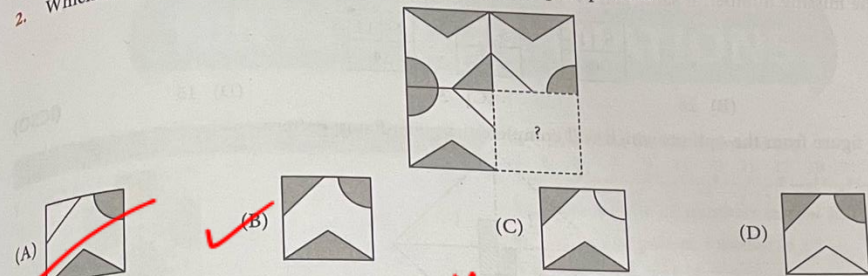
(A) 25

(B) 23

(C) 17

(D) 13

2. Which of the following options will complete the given figure pattern?

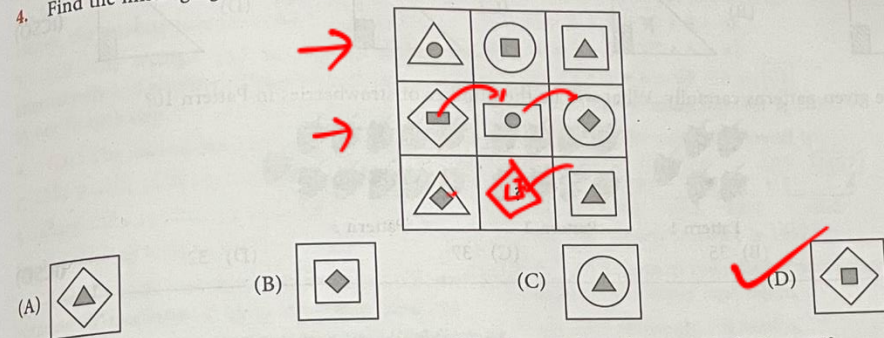


3. Select a number from the options which will complete the given number pattern.

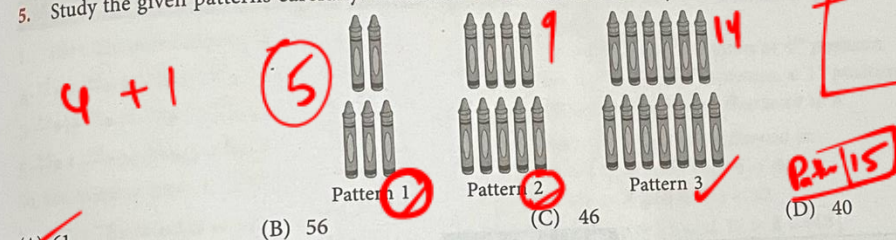
15, 17, 21, 27, ?, 45, 57

- (A) 30 (B) 35 (C) 32 (D) 31

4. Find the missing figure in the given figure matrix.



5. Study the given patterns carefully. What will be the number of crayons in Pattern 15?

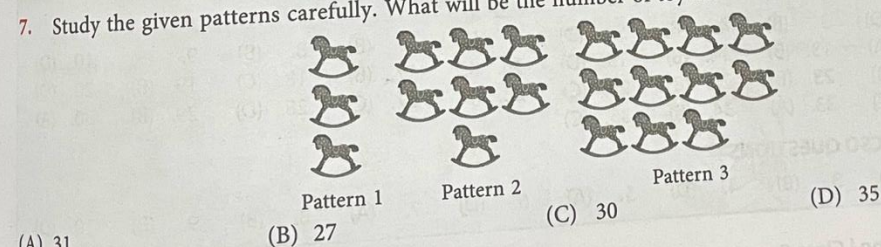


6. Which of the following options will continue the given pattern?

L3, N8, P13, R18, ?

- (A) T21 (B) U23 (C) S20 (D) T23

7. Study the given patterns carefully. What will be the number of toy horses in Pattern 8?



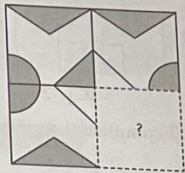
$$① \quad 4 \times 1 + 1 = 5$$

$$② \quad 4 \times 2 + 1 = 9$$

$$③ \quad 4 \times 3 + 1 = 13$$

$$④ \quad 4 \times 15 + 1 = 61$$

2. Which of the following options will complete the given figure pattern?

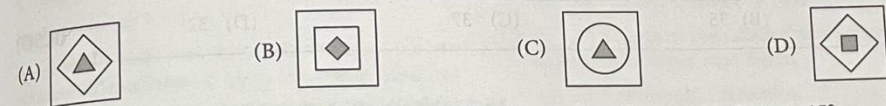
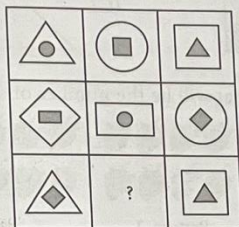


3. Select a number from the options which will complete the given number pattern.

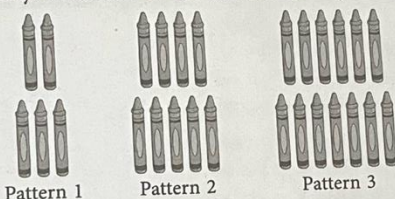
15, 17, 21, 27, ?, 45, 57

(A) 30 (B) 35 (C) 32 (D) 31

4. Find the missing figure in the given figure matrix.



5. Study the given patterns carefully. What will be the number of crayons in Pattern 15?



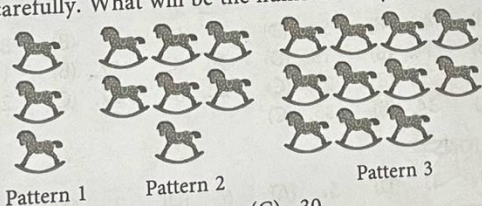
(A) 61 (B) 56 (C) 46 (D) 40

6. Which of the following options will continue the given pattern?

L3, N8, P13, R18, ?

(A) T21 (B) U23 (C) S20 (D) T23

7. Study the given patterns carefully. What will be the number of toy horses in Pattern 8?



(A) 31 (B) 27 (C) 30 (D) 35

$P_1 \rightarrow 3$
 $P_2 \rightarrow 7$
 $P_3 \rightarrow 11$
 $P_4 \rightarrow 15$
 $P_5 \rightarrow 19$
 $P_6 \rightarrow 23$
 $P_7 \rightarrow 27$
 $P_8 \rightarrow 31$

8. Find the missing number, if same rule is followed in all the three figures.

8	13
42	

5	7
?	

6	11
34	

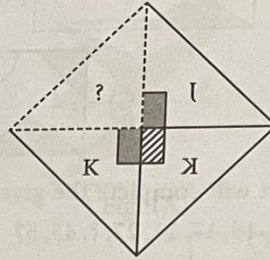
(A) 18

☒ (B) 24

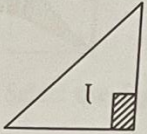
(C) 36

(D) 15

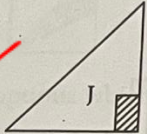
9. Select a figure from the options which will complete the given figure pattern.



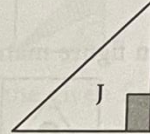
(A)



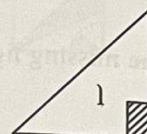
☒ (B)



(C)



(D)



10. Study the given patterns carefully. What will be the number of strawberries in Pattern 10?



Pattern 1



Pattern 2



Pattern 3

(A) 30

(B) 35

(C) 37

☒ (D) 32

Date: __/__/__

$P_1 \rightarrow 5$
 $P_2 \rightarrow 8$
 $P_3 \rightarrow 11$
 $P_4 \rightarrow 14$
 $P_5 \rightarrow 17$
 $P_6 \rightarrow 20$
 23
 26
 29
 32

8. Find the missing number, if same rule is followed in all the three figures.

8	13
42	

5	7
?	

6	11
34	

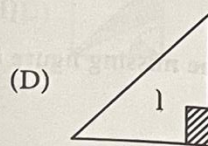
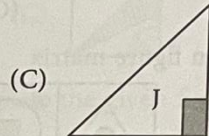
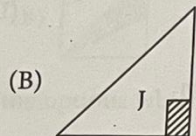
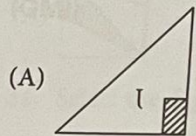
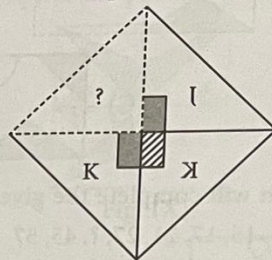
(A) 18

(B) 24

(C) 36

(D) 15

9. Select a figure from the options which will complete the given figure pattern.



10. Study the given patterns carefully. What will be the number of strawberries in Pattern 10?



Pattern 1



Pattern 2



Pattern 3

(A) 30

(B) 35

(C) 37

(D) 32

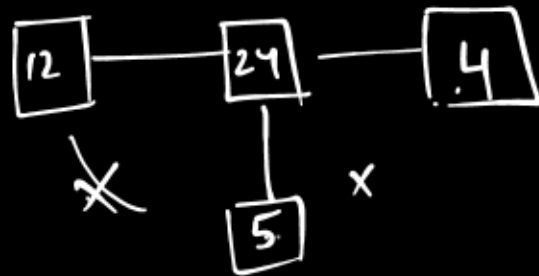
Date: __/__/____

Q.11

4	3	49✓
2	7	81✓
a	1	?

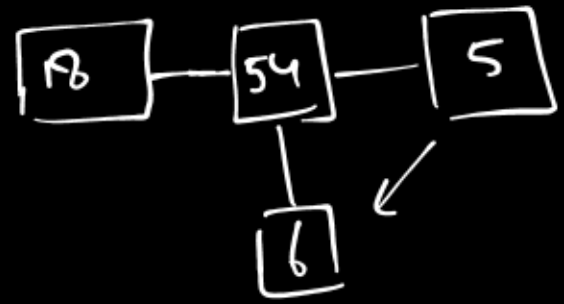
100

Date: ___/___/___

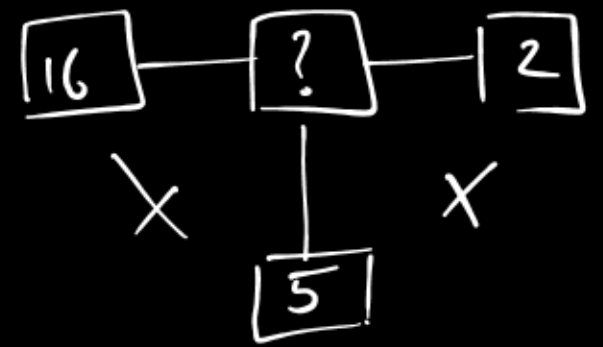


$$\begin{array}{r} 20 \\ \times 12 \\ \hline 240 \end{array} \div 10$$

$$\begin{array}{r} 20 \\ + 12 \\ \hline 32 \\ + 2 \\ \hline 34 \end{array}$$



$$\begin{array}{r} 30 \\ \times 18 \\ \hline 540 \end{array} \div 10$$



$$160 \div 10 = 16$$

- (A) 23
 ✓ (B) 16

- (C) 9
 (D) 40

End of the chapter