

# Series

## Learning Objectives

- Series.
- Number Series
- Letter Series
- Mixed Series

## Series

Series is a sequence of elements put together according to a certain rule. Series is mainly of three types - Letter Series, Number Series and Mixed Series.

## Number Series

Such type of series consists of numbers that are arranged in a particular sequence, in the question related to number series, candidates are asked either to insert a missing number or find the one that does not follow the pattern of the series. On this basis we divided the questions of number series in two types.

Let's discuss them one by one.

### Type - I (To insert a missing number)

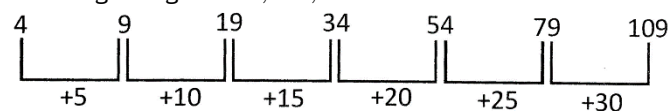
#### • Example 1

**4, 9, 19, 34, 54, ?, 109**

- (a) 89 (b) 84  
(c) 74 (d) 79  
(e) None of these

**Answer: (d)**

**Explanation:** The difference between the numbers increases by 5 at each step as it means left to right in the series, after beginning from 5, i.e.,



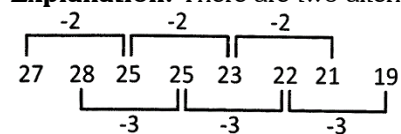
#### • Example 2

**27, 28, 25, 25, 23, 22, 21?**

- (a) 20 (b) 21  
(c) 19 (d) 18  
(e) None of these

**Answer: (c)**

**Explanation:** There are two alternate series:



**Series I:** 27, 25, 23, 21 (following - 2 pattern)

**Series II:** 28, 25, 22, 19 (following - 3 pattern)

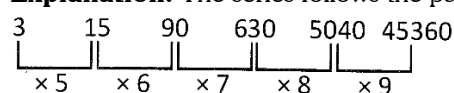
#### • Example 3

**3, 15, 90, 630, 5040, ?**

- (a) 35280 (b) 40320  
(c) 45360 (d) 10080  
(e) None of these

**Answer: (c)**

**Explanation:** The series follows the pattern given below.



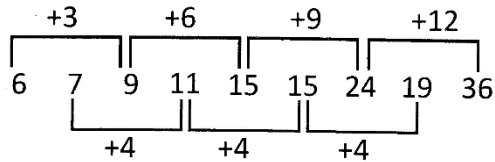
• **Example 4**

**6, 7, 9, 11, 15, 15, 24, 19 ?**

- (a) 32 (b) 34  
(c) 36 (d) 37  
(e) None of these

**Answer: (c)**

**Explanation:** There are two alternate series.



**Type - II (To find the number that does not follow the pattern of the series)**

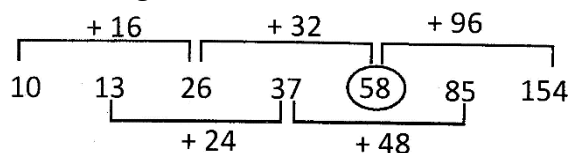
• **Example 1**

**10, 13, 26, 37, 51, 85, 154**

- (a) 10 (b) 26  
(c) 51 (d) 154  
(e) None of these

**Answer: (c)**

**Explanation:** The given series contains two alternate series.



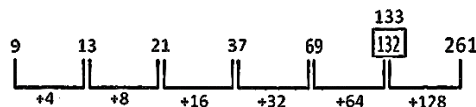
• **Example 2**

**9, 13, 21, 37, 69, 132, 261?**

- (a) 21 (b) 37  
(c) 69 (d) 132  
(e) 261

**Answer: (d)**

**Explanation:**



Hence, the wrong number is 132 and should be replaced by 133.

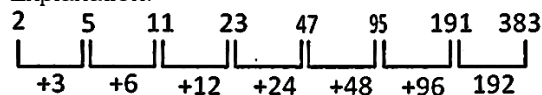
• **Example 3**

**2, 5, 11, 23, 48, 95, 191, 383**

- (a) 5 (b) 11  
(c) 23 (d) 48  
(e) 95

**Answer: (d)**

**Explanation:**



Hence, number 48 is wrong and should be replaced by 47.

• **Example 4**

**4, 5, 14, 39, 103, 169, 290?**

- (a) 5 (b) 14  
(c) 39 (d) 103  
(e) 169

**Answer: (d)**

$$\begin{array}{ccccccccc} 4 & 5 & 14 & 39 & 88 & 169 & 290 \\ \hline & + (1)^2 & + (3)^2 & + (5)^2 & + (7)^2 & + (9)^2 & + (11)^2 \end{array}$$

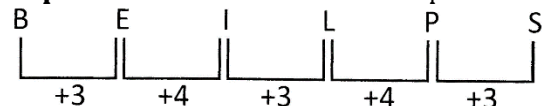
## Letter Series

### Type-1

- **Example 1**

(a) Q (b) M  
(c) P (d) N  
(e) None of these

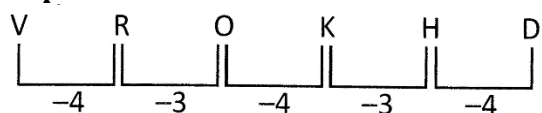
**Explanation:** The series follows the pattern +3, +4 which is repeated.



**VROK? D**

- (a) L (b) I  
(c) H (d) J  
(e) None of these

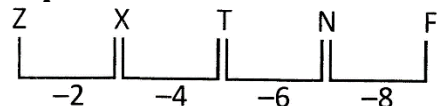
**Explanation:** The letters are in reverse series and the difference is four and three alternately.



**Z X ? N F**

- (a) T (b) R  
(c) Q (d) O  
(e) None of these

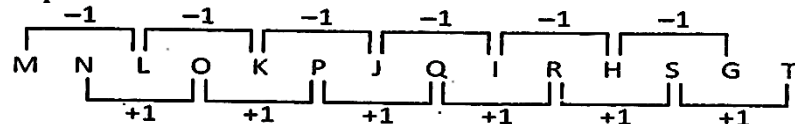
**Explanation:** The difference between the letters is increased by two at each step.



**M N L O K P J Q I R H S?**

- (a) TG (b) GT  
(c) FU (d) RH  
(e) None of these

**Explanation:** There are two alternate series:



**Series I:** MLKJIHG (in reverse series)

**Series II:** NOPQRST (in natural series)

## Type - II

This type of questions consists of a series of group of letters arranged according to particular pattern.

### • Example 1

**PQR, HIJ, DEF, ?**

- (a) DEF (b) CDE  
(c) ABC (d) BCD  
(e) None of these

**Answer: (d)**

**Explanation:** The letters in each group of alphabet are in the recession of -8, -4, -2 respectively.

P	Q	R		H	I	J		D	E	F		B	C	D
			-8				-4				-2			
			-8				-4				-2			
			-8				-4				-2			

### • Example 2

**AZ, GT, MM, ?, YB**

- (a) KF (b) TS  
(c) RX (d) SH  
(e) None of these

**Answer: (d)**

**Explanation:** The letters in one group correspond to the letters in the next group in the manner + 6, - 6 respectively, i.e.,

A	Z		G	T		M	N		S	H		Y	B
		+6			+6			+6			+6		
		+6			+6			+6			+6		
		+6			+6			+6			+6		

### • Example 3

**PUF, QVG, RWH, ?**

- (a) SXI (b) SYZ  
(c) SXJ (d) SVI  
(e) None of these

**Answer: (a)**

**Explanation:** The three letters in each group are moved one step forward.

P	U	F		Q	V	G		R	W	H		S	X	I
			+1				+1				+1			
			+1				+1				+1			
			+1				+1				+1			

### • Example 4

**IXT, MAY, QDX, ?**

- (a) WGX (b) VHY  
(c) UGZ (d) YHZ  
(e) None of these

**Answer: (c)**

**Explanation:** The series follows the pattern given below.

I	X	T		M	A	V		Q	D	X		U	G	Z
			+4				+4				+4			
			+3				+3				+3			
			+2				+2				+2			

## Mixed Series

In this type of series, both letters of alphabets as well as numerical digits are put in a sequence according to a particular pattern.

- **Example 1**  
**ZA5, YB4, XC3, WD2.....**

- (a) EV7 (b) VE3  
(c) VE5 (d) VE1  
(e) None of these

**Answer: (d)**

**Explanation:** Each group of the series made up of two alphabetical letters and one number. First group contains first and last letter of alphabet, second group contains second and second last letter of alphabet, third group contains third and third from last letters of alphabet, and number decreases by 1 at every step. So the required element is VE1.

- **Example 2**  
**1 a, 4 b, 9 c, 16 d, 25 e, ?**

- (a) 34 f (b) 35 f  
(c) f 36 (d) 36 f  
(e) None of these

**Answer: (d)**

**Explanation:**

**1<sup>st</sup> series:**  $1^2, 2^2, 3^2, 4^2, 5^2, \dots$

**2<sup>nd</sup> series:** a, b, c, d, e, .....

**Example 3**

**a37, e24, h13 l6, ?**

- (a)  $q^0$  (b)  $q^1$   
(c)  $q^2$  (d)  $q^3$   
(e) None of these

**Answer: (c)**

**Explanation:**

**1<sup>st</sup> series:** a (bcd) e (fg) h (ijk) l (mn) q

**2<sup>nd</sup> series:** 37 (-13) 24 (-11) 13 (-7) 6 (-5) 1

- **Example 4**  
**A729, C676, G625, 1576**

- (a) M625 (b) N484  
(c) N416 (d) M529  
(e) None of these

**Answer: (d)**

**Explanation:**

**1<sup>st</sup> series:** A (B) C (DEF) G (H) I (JKL) M

**2<sup>nd</sup> series:**  $27^2, 26^2, 25^2, 24^2, 23^2$ .