

30/11/2025

19. Number series

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(Cetech responsive)

(1) calcⁿ (2) Patterns (3) Logic

(#) Patterns :-

1) Type 1 :- Even / odd number series

Example 1 :- 2, 4, 6, 8, 10, 12

Example 2 :- 1, 3, 5, 7, 9, 11

2) Type 2 :- Prime number series

Example 1 :- 2, 3, 5, 7, 11

Example 2 :- 3, 7, 13, 19, 29
(5) (11) (17) (23)

3) Type 3 :- Series formed by squares of numbers

Example 1 :- 4, 9, 16, 25, 36, 49

Example 2 :- 1, 9, 25, 49, 81, 121
1 3 5 7 9 11

4) Type 4 :- Series formed by cubes of numbers

Example 1 :- 64, 125, 216, 343, 512

Example 2 :- 8, 27, 125, 343, 1331
2 3 5 7 11

5) Type 5 :- Series formed by addition

Example 1 :- 12, 13, 15, 17, 20

Example 2 :- 1, 3, 4, 8, 15, 27, 50
$$2+3 = \overbrace{1+3}^{+1}, \overbrace{4+1}^{+2}, \overbrace{8+5}^{+3}, \overbrace{15+27}^{+4}$$

6) Type 6 :- Series formed by multiplication

Example 1 :- 0.5, 1.5, 4.5, 13.5, 40.5
$$\begin{array}{ccccccc} & \nearrow & \nearrow & \nearrow & \nearrow & \nearrow & \\ & \times 3 & \end{array}$$

Example 2 :- 1, 3, 7, 15, 31, 63, 127
$$\begin{array}{ccccccc} & \nearrow & \nearrow & \nearrow & \nearrow & \nearrow & \\ & \times 2+1 & \end{array}$$

$\times 2+1$

7) Type 7 :- Series formed by division

Example 1 :- $840, 168, 12, 14, 7, \underline{1}$

$$\begin{array}{cccccc} & 840 & 168 & 12 & 14 & 7 \\ & \downarrow x5 & \downarrow x4 & \downarrow x3 & \downarrow x2 & \downarrow x1 \end{array}$$

Example 2 :- $240, \underline{240}, 120, 40, 10, \underline{2}$

$$\begin{array}{cccccc} & 240 & 240 & 120 & 40 & 10 \\ & \downarrow x2 & \downarrow x3 & \downarrow x4 & \downarrow x5 & \downarrow \end{array}$$

8) Type 8 :- Series formed by subtracting or adding something to squares of successive terms.

Example 1 :- $12, 20, 30, 42, \underline{56}$

$$\begin{array}{cccccc} & 12 & 20 & 30 & 42 & 56 \\ & \uparrow +8 & \uparrow +10 & \uparrow +12 & \uparrow +14 & \\ & 3^2+3 & 4^2+4 & 5^2+5 & 6^2+6 & 7^2+7 \end{array}$$

Example 2 :- $3, 7, 13, 21, \underline{31}$

$$\begin{array}{cccccc} & 3 & 7 & 13 & 21 & 31 \\ & \uparrow +4 & \uparrow +6 & \uparrow +8 & \uparrow +10 & \end{array}$$

9) Type 9 :- Series formed by subtracting or adding something to cubes of successive terms.

Example 1 :- $0, 6, 24, 60, 120, \underline{210}$

$$\begin{array}{cccccc} & 0 & 6 & 24 & 60 & 120 \\ & 1^3-1 & 2^3-2 & 3^3-3 & 4^3-4 & 5^3-5 \\ & & & & & 6^3-6 \end{array}$$

Example 2 :- $10, 24, 68, 120, \underline{222}$

$$\begin{array}{cccccc} & 10 & 24 & 68 & 120 & 222 \\ & 2^3+2 & 3^3-3 & 4^3+4 & 5^3-5 & 6^3+6 \end{array}$$

10) Type 10 :- combination of two different series.

Example 1 :- $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{7}{16}, \frac{9}{32}$

$$\begin{array}{cccccc} & \frac{1}{2} & \frac{3}{4} & \frac{5}{8} & \frac{7}{16} & \frac{9}{32} \\ & \uparrow +2 & \uparrow +2 & \uparrow +2 & \uparrow +2 & \uparrow \\ & \times 2 & \times 2 & \times 2 & \times 2 & \times \end{array}$$

Example 2 :- $512, 16, 343, 25, \underline{216}, \frac{36}{62}$

$$\begin{array}{cccccc} & 512 & 16 & 343 & 25 & 216 \\ & \uparrow 8^3 & \uparrow 4^2 & \uparrow 7^3 & \uparrow 5^2 & \uparrow 6^3 \\ & & & & & \frac{36}{62} \end{array}$$

7) TYPE II :- series formed by adding terms at more than one level.

Example: $5, 12, 27, 58, 121, \underline{248}$

$$\begin{array}{ccccccccc} & 5 & , & 12 & , & 27 & , & 58 & , \\ & +7 & & +15 & & +31 & & +63 & \\ & & \downarrow \\ & & x2+1 \end{array}$$

Some Important series:-

i) $8, 4, 4, 6, 12, \underline{30}$

$$\begin{array}{ccccccccc} & 8 & , & 4 & , & 4 & , & 6 & , \\ & +4 & & \times 1 & & +4 & & \times 1.5 & \\ & & \downarrow & & \downarrow & & \downarrow & & \downarrow \\ & & x0.5 & & x1 & & x1.5 & & x2 \end{array}$$

ii) $6, 9, 18, 45, \underline{126}$

$$\begin{array}{ccccccccc} & 6 & , & 9 & , & 18 & , & 45 & , \\ & +3 & & +9 & & +27 & & +81 & \\ & & \downarrow & & \downarrow & & \downarrow & & \downarrow \end{array}$$

1) $2, 3, 5, 7, ?$

\Rightarrow prime number $\rightarrow 2, 3, 5, 7, \textcircled{11}$

2) $1, 3, 6, 10, 15, ?$

$\Rightarrow 1 \xrightarrow{+2} 3 \xrightarrow{+3} 6 \xrightarrow{+4} 10 \xrightarrow{+5} 15 \xrightarrow{+6} \textcircled{21}$

3) $4, 9, 16, 25, ?$

\Rightarrow

4	9	16	25	(36) ✓
2^2	3^2	4^2	5^2	6^2

4) $7, 11, 13, 17, 19, 23, ?$

$7 \xrightarrow{+4} 11 \xrightarrow{+2} 13 \xrightarrow{+4} 17 \xrightarrow{+2} 19 \xrightarrow{+4} 23 \xrightarrow{+2} \textcircled{25} \text{ } \checkmark$

⑤ 41, 43, 47, 53, 59, ?

$$\Rightarrow 41 \rightarrow 43 \rightarrow 47 \rightarrow 53 \rightarrow 59 \rightarrow 61 \checkmark$$

Prime numbers

⑥ 36, 11, 18, 27, ?

$$\Rightarrow 3 \xrightarrow{+3} 6 \xrightarrow{+5} 11 \xrightarrow{+7} 18 \xrightarrow{+9} 27 \xrightarrow{+11} 38 \checkmark$$

⑦ 4, 9, 19, 34, 54, ?

$$\Rightarrow 4 \xrightarrow{+5} 9 \xrightarrow{+10} 19 \xrightarrow{+15} 34 \xrightarrow{+20} 54 \xrightarrow{+25} 79 \checkmark$$

⑧ 2, 3, 5, 8, 12, ?

$$\Rightarrow 2 \xrightarrow{+1} 3 \xrightarrow{+2} 5 \xrightarrow{+3} 8 \xrightarrow{+4} 12 \xrightarrow{+5} 17 \checkmark$$

⑨ 100, 81, 64, 49, ?

$$\Rightarrow \begin{array}{ccccc} 100 & 81 & 64 & 49 & 36 \checkmark \\ 10^2 & 9^2 & 8^2 & 7^2 & 6^2 \end{array}$$

⑩ 8, 27, 64, 125, 216, 343, ?

$$\Rightarrow \begin{array}{ccccccc} 8 & , & 27 & & 64 & & 125 & 216 & 343 & 512 \checkmark \\ 2^3 & & 3^3 & & 4^3 & & 5^3 & 6^3 & 7^3 & 8^3 \end{array}$$

⑪ 56, 63, 70, 77, ?

$$\Rightarrow 56 \xrightarrow{+7} 63 \xrightarrow{+7} 70 \xrightarrow{+7} 77 \xrightarrow{+7} 84 \checkmark$$

12) $36, 48, 60, 72, ?$

$$\Rightarrow 36 \rightarrow 48 \rightarrow 60 \rightarrow 72 \rightarrow 84$$

12 - Table

13) $54, 72, 90, 108, ?$

$$\Rightarrow 54 \xrightarrow{+18} 72 \xrightarrow{+18} 90 \xrightarrow{+18} 108 \xrightarrow{+18} 126$$

14) $2, 4, 8, 16, 32, ?$

$$\Rightarrow 2 \xrightarrow{\times 2} 4 \xrightarrow{\times 2} 8 \xrightarrow{\times 2} 16 \xrightarrow{\times 2} 32 \xrightarrow{\times 2} 64$$

15) $3, 6, 12, 24, 48, ?$

$$\Rightarrow 3 \xrightarrow{\times 2} 6 \xrightarrow{\times 2} 12 \xrightarrow{\times 2} 24 \xrightarrow{\times 2} 48 \xrightarrow{\times 2} 96$$

16) $10, 14, 18, 22, ?$

$$\Rightarrow 10 \xrightarrow{+4} 14 \xrightarrow{+4} 18 \xrightarrow{+4} 22 \xrightarrow{+4} 26$$

17) $100, 99, 97, 94, 90, ?$

$$\Rightarrow 100 \xrightarrow{-1} 99 \xrightarrow{-2} 97 \xrightarrow{-3} 94 \xrightarrow{-4} 90 \xrightarrow{-5} 85$$

18) $3, 9, 27, 81, ?$

$$\Rightarrow 3 \xrightarrow{\times 3} 9 \xrightarrow{\times 3} 27 \xrightarrow{\times 3} 81 \xrightarrow{\times 3} 243$$

19) $24, 48, 72, 96, ?$

$$\Rightarrow 24 \xrightarrow{\times 2} 48 \xrightarrow{\times 4} 72 \xrightarrow{\times 6} 96 \xrightarrow{\times 8} 120$$

20) 78, 88, 99, 111, ?

$$\Rightarrow 78 \xrightarrow{+10} 88 \xrightarrow{+11} 99 \xrightarrow{+12} 111 \xrightarrow{+13} \textcircled{124}$$

21) 512, 256, 128, 64, 32, ?

$$\Rightarrow 512 \xrightarrow{\frac{1}{2}} 256 \xrightarrow{\frac{1}{2}} 128 \xrightarrow{\frac{1}{2}} 64 \xrightarrow{\frac{1}{2}} 32 \xrightarrow{\frac{1}{2}} \textcircled{16}$$

22) 1, 12, 123, 1234, ?

$$\Rightarrow 1, 12, 123 \quad \textcircled{1234}$$

23) 123456, 23456, 2345, 345, ?

$$\Rightarrow \cancel{123456} \quad \cancel{23456} \quad \cancel{2345} \quad \cancel{345} \quad \textcircled{39}$$

24) 35, 49, 63, 77, ?

$$\Rightarrow 35 \xrightarrow{+14} 49 \xrightarrow{+14} 63 \xrightarrow{+14} 77 \xrightarrow{+14} \textcircled{91}$$

25) 46, 52, 60, 70, ?

$$\Rightarrow 46 \xrightarrow{+6} 52 \xrightarrow{+8} 60 \xrightarrow{+10} 70 \xrightarrow{+12} \textcircled{82}$$

26) 1, 11, 111, 1111, ?

$$\Rightarrow 1, \textcircled{11} \quad \textcircled{111} \quad \textcircled{1111}$$

27) 6, 12, 21, ?, 48

$$\Rightarrow 6 \xrightarrow{+6} 12 \xrightarrow{+9} 21 \xrightarrow{+12} \textcircled{33} \xrightarrow{+15} 48$$

28) 2, 5, 9, ?, 20, 27

$$\Rightarrow 2 \xrightarrow{+3} 5 \xrightarrow{+4} 9 \xrightarrow{+5} \underline{14} \xrightarrow{+6} 20 \xrightarrow{+7} 27$$

29) 6, 11, 21, 36, 56, ?

$$\Rightarrow 6 \xrightarrow{+5} 11 \xrightarrow{+10} 21 \xrightarrow{+15} 36 \xrightarrow{+20} 56 \xrightarrow{+25} \underline{81}$$

30) 10, 18, 28, 40, 54, 70, ?

$$\Rightarrow 10 \xrightarrow{+8} 18 \xrightarrow{+10} 28 \xrightarrow{+12} 40 \xrightarrow{+14} 54 \xrightarrow{+16} 70 \xrightarrow{+18} \underline{88}$$

31) 120, 99, 80, 63, 48, ?

$$\Rightarrow 120 \xrightarrow{-21} 99 \xrightarrow{-19} 80 \xrightarrow{-17} 63 \xrightarrow{-15} 48 \xrightarrow{-13} \underline{35}$$

32) 22, 24, 28, ?, 52, 84

$$\Rightarrow 22 \xrightarrow{+2} 24 \xrightarrow{+4} 28 \xrightarrow{+8} \underline{36} \xrightarrow{+16} 52 \xrightarrow{+32} 84$$

33) 125, 80, 45, 20, ?

$$\Rightarrow 125 \xrightarrow{-45} 80 \xrightarrow{-35} 45 \xrightarrow{-25} 20 \xrightarrow{-15} \underline{5}$$

34) 1, 5, 13, 25, 41, ?

$$\Rightarrow 1 \xrightarrow{+4} 5 \xrightarrow{+8} 13 \xrightarrow{+12} 25 \xrightarrow{+16} 41 \xrightarrow{+20} \underline{61}$$

35) 2, 15, 41, 80, ?

$$\Rightarrow 2 \xrightarrow{+13} 15 \xrightarrow{+26} 41 \xrightarrow{+39} 80 \xrightarrow{+50} \underline{132}$$

moderate

1) 1, 2, 5, 10, 17, ?

$$\Rightarrow \text{odd no. odd} \quad 1 \xrightarrow{+1} 2 \xrightarrow{+3} 5 \xrightarrow{+5} 10 \xrightarrow{+7} 17 \xrightarrow{+9} 26$$

2) 4, 9, 25, 49, 121, ?

\Rightarrow prime no. square

$$\begin{array}{ccccccc} 4 & 9 & 25 & 49 & 121 & 169 \\ 2^2 & 3^2 & 5^2 & 7^2 & 11^2 & 13^2 \end{array}$$

3) 34, 36, 40, 48, 64, ?

$$\Rightarrow 34 \xrightarrow{+2} 36 \xrightarrow{+4} 40 \xrightarrow{+8} 48 \xrightarrow{+16} 64 \xrightarrow{+32} 96$$

4) 9, 19, 40, 83, 170, 345, ?

\Rightarrow

$$9 \xrightarrow{x2+1} 19 \xrightarrow{x2+1} 40 \xrightarrow{x2+1} 83 \xrightarrow{x2+1} 170 \xrightarrow{x2+1} 345 \xrightarrow{x2+1} 696$$

5) 980, 984, 236, 112, 50, ?

\Rightarrow

$$980 \xrightarrow{x2+2} 984 \xrightarrow{x2+2} 236 \xrightarrow{x2+2} 112 \xrightarrow{x2+2} 50 \xrightarrow{x2+2} 19$$

6) 8, 9, 20, 63, 256, 1285, ?

\Rightarrow

$$8 \xrightarrow{x1+2} 9 \xrightarrow{x2+2} 20 \xrightarrow{x3+3} 63 \xrightarrow{x4+4} 256 \xrightarrow{x5+5} 1285 \xrightarrow{x6+6} 7716$$

7) 4832, 5840, 6848, ?

\Rightarrow

$$4832 \xrightarrow{+1008} 5840 \xrightarrow{+1008} 6848 \xrightarrow{+1008} 7856$$

8) 10, 100, 200, 310, ?

$$\Rightarrow 10 \xrightarrow{+90} 100 \xrightarrow{+100} 200 \xrightarrow{+110} 310 \xrightarrow{+120} 430 \quad \boxed{\text{L}}$$

9) 6, 17, 39, 72, ?

$$\Rightarrow 6 \xrightarrow{+11} 17 \xrightarrow{+22} 39 \xrightarrow{+33} 72 \xrightarrow{+44} \boxed{116} \quad \text{L}$$

10) 325, 259, 204, 160, 127, 105, ?

$$\Rightarrow 325 \xleftarrow{+66} 259 \xleftarrow{+55} 204 \xleftarrow{+44} 160 \xleftarrow{+33} 127 \xleftarrow{+22} 105 \xleftarrow{+11} \boxed{94} \quad \text{L}$$

11) 1, 4, 10, 22, 46, ?

$$\Rightarrow 1 \xrightarrow{+3} 4 \xrightarrow{+6} 10 \xrightarrow{+12} 22 \xrightarrow{+24} 46 \xrightarrow{+48} \boxed{99} \quad \text{L}$$

12) 0.5, 0.55, 0.65, 0.8, ?

$$\Rightarrow 0.50 \xrightarrow{+5} 0.55 \xrightarrow{+10} 0.65 \xrightarrow{+15} 0.80 \xrightarrow{+20} \boxed{1.00} \quad \text{L}$$

13) 5, 6, 9, 15, ?, 40

$$\Rightarrow \begin{array}{ccccccccc} 5 & \xrightarrow{+1} & 6 & \xrightarrow{+3} & 9 & \xrightarrow{+6} & 15 & \xrightarrow{+10} & \boxed{25} \\ & & +2 & & +3 & & +4 & & +5 \\ & & 7 & & 12 & & 19 & & 25 \end{array} \quad \text{L}$$

14) 1, 9, 25, 49, 81, ?

\Rightarrow odd no. square

$$\begin{array}{cccccc} 1 & 9 & 25 & 49 & 81 & \boxed{121} \\ 1^2 & 3^2 & 5^2 & 7^2 & 9^2 & 11^2 \end{array}$$

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Q) $1, 1, 4, 8, 9, 27, 16, ?$

\Rightarrow

1	1	4	8	9	27	16	(64)
1^2	1^3	2^2	2^3	3^2	3^3	4^2	4^3

(D)

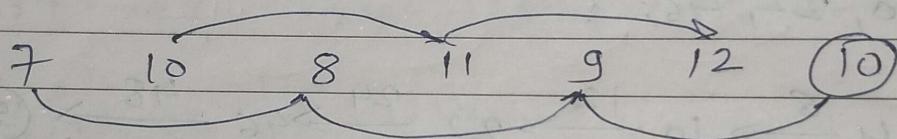
$2, 1, \frac{1}{2}, \frac{1}{4}, ?$

\Rightarrow

$$2 \xrightarrow{\frac{1}{2}} 1 \xrightarrow{\frac{1}{2}} \frac{1}{2} \xrightarrow{\frac{1}{2}} \frac{1}{4} \xrightarrow{\frac{1}{2}} \left(\frac{1}{8}\right)$$

Q) $7, 10, 8, 11, 9, 12, ?$

\Rightarrow



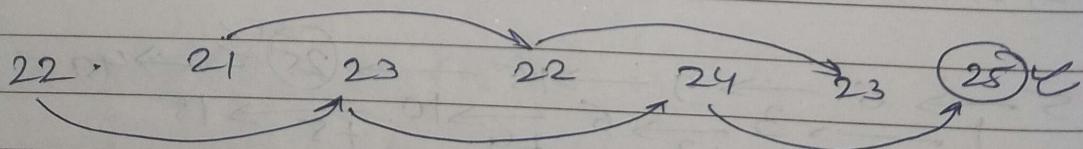
Q) $36, 34, 30, 28, 24, ?$

\Rightarrow

$$36 \xrightarrow{-2} 34 \xrightarrow{-4} 30 \xrightarrow{-2} 28 \xrightarrow{-4} 24 \xrightarrow{-2} (22)$$

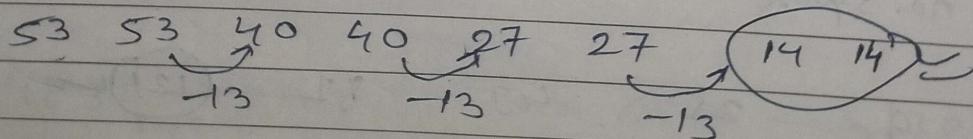
Q) $22, 21, 23, 22, 24, 23, ?$

\Rightarrow

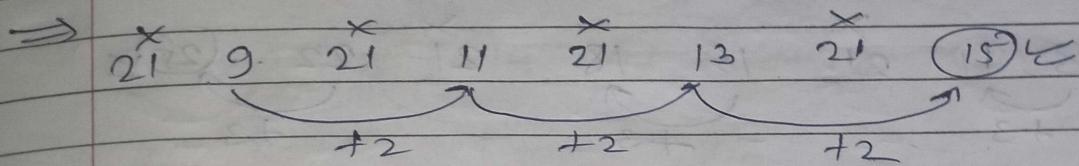


Q) $53, 53, 40, 40, 27, 27, ?, ?$

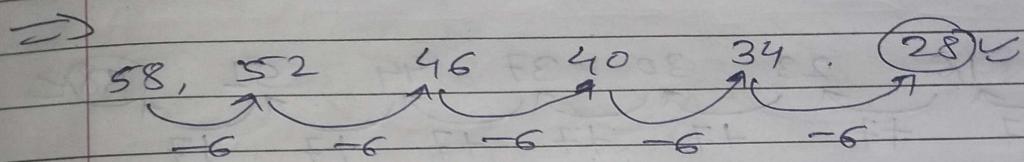
\Rightarrow



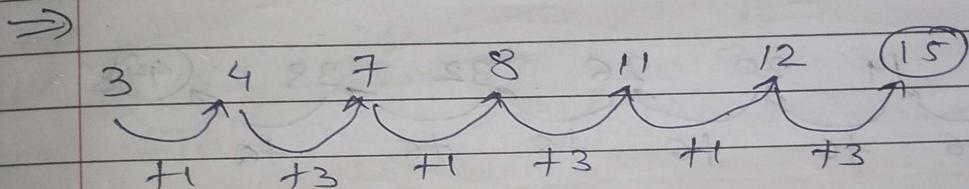
Q) 21, 9, 21, 11, 21, 13, 21, ?



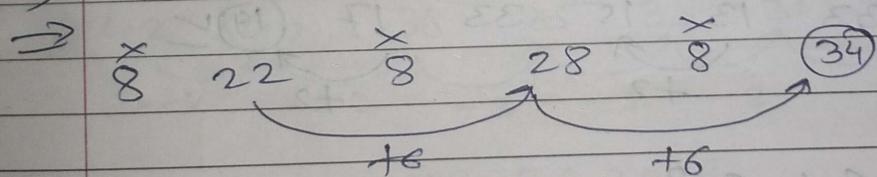
Q) 58, 52, 46, 40, 34, ?



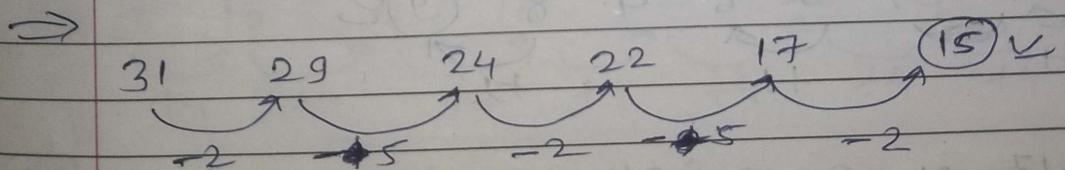
Q) 3, 4, 7, 8, 11, 12, ?



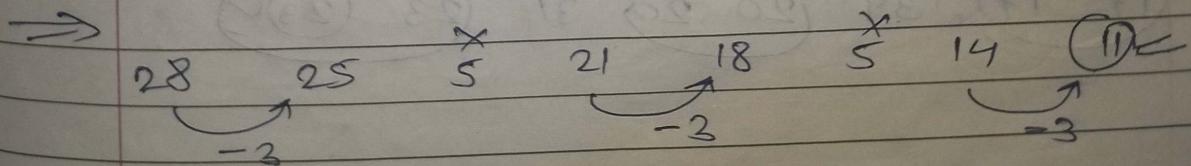
Q) 8, 22, 8, 28, 8, ?



Q) 31, 29, 24, 22, 17, ?



Q) 28, 25, 5, 21, 18, 5, 14, ?



12) 8, 11, 21, 15, 18, 21, 22, ?

$$\Rightarrow \begin{array}{ccccccc} 8 & 11 & 21 & 15 & 18 & 21 & 22 \\ \swarrow +3 & & \searrow +3 & \swarrow +3 & & \searrow +3 & \textcircled{25} \text{ } \checkmark \\ \end{array}$$

13) 9, 16, 23, 30, 37, 44, 51, ?

$$\Rightarrow \begin{array}{cccccccccc} 9 & 16 & 23 & 30 & 37 & 44 & 51 & 58 \\ \swarrow +7 & \searrow +7 & \swarrow +7 & \searrow +7 & \swarrow +7 & \searrow +7 & \swarrow +7 & \textcircled{58} \text{ } \checkmark \\ \end{array}$$

14) 2, 8, 14, 20, 26, 32, 38, ?

$$\Rightarrow \begin{array}{cccccccccc} 2 & 8 & 14 & 20 & 26 & 32 & 38 & 44 \\ \swarrow +6 & \searrow +6 & \swarrow +6 & \searrow +6 & \swarrow +6 & \searrow +6 & \swarrow +6 & \textcircled{44} \text{ } \checkmark \\ \end{array}$$

15) 9, 11, 33, 13, 15, 33, 17, ?

$$\Rightarrow \begin{array}{cccccccccc} 9 & 11 & 33 & 13 & 15 & 33 & 17 & 19 \\ \swarrow +2 & & \searrow +2 & \swarrow +2 & & \searrow +2 & \swarrow +2 & \textcircled{19} \text{ } \checkmark \\ \end{array}$$

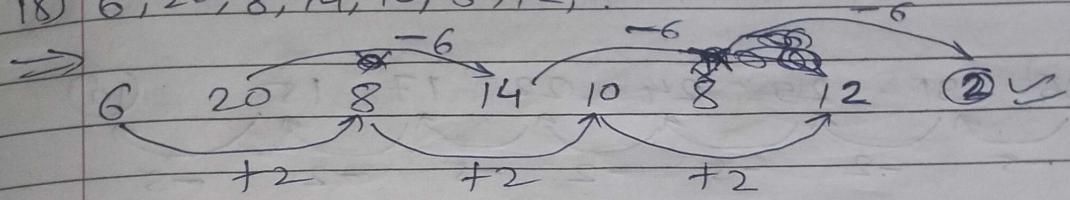
16) 2, 3, 4, 5, 6, 4, 8, ?

$$\Rightarrow \begin{array}{cccccccccc} 2 & 3 & 4 & 5 & 6 & 4 & 8 & 9 \\ \swarrow +1 & & \searrow +1 & \swarrow +1 & & \searrow +1 & \swarrow +1 & \textcircled{9} \text{ } \checkmark \\ \end{array}$$

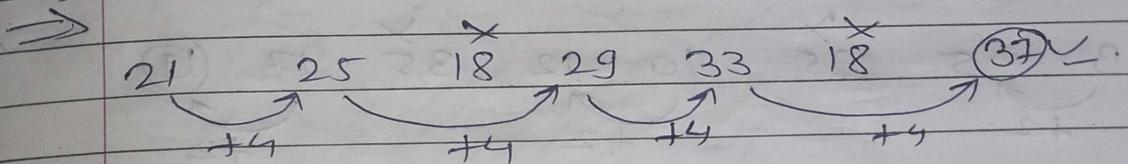
17) 17, 17, 34, 20, 20, 31, 23, ?

$$\Rightarrow \begin{array}{cccccccccc} \textcircled{17} & \textcircled{17} & 34 & \textcircled{20} & \textcircled{20} & 31 & 23 & \textcircled{23} \text{ } \checkmark \\ \end{array}$$

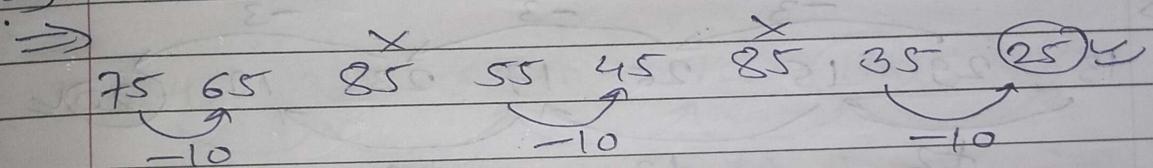
18) 6, 20, 8, 14, 10, 8, 12, ?



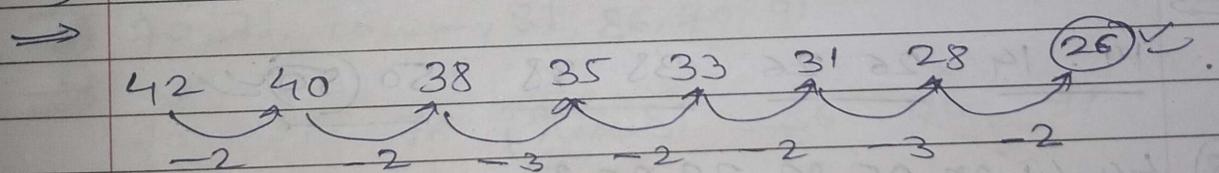
19) 21, 25, 18, 29, 33, 18, ?



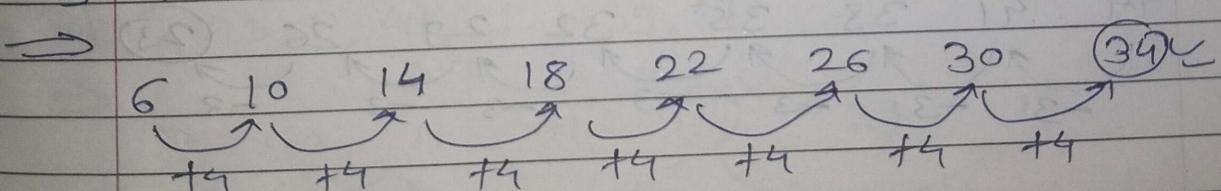
20) 75, 65, 85, 55, 45, 85, 35, ?



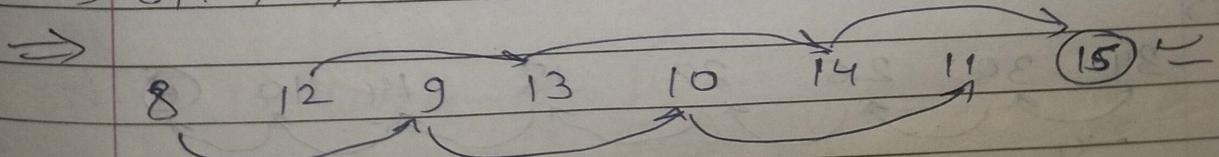
21) 42, 40, 38, 35, 33, 31, 28, ?



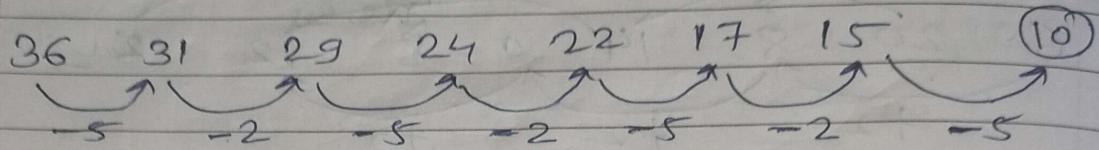
22) 6, 10, 14, 18, 22, 26, 30, ?



23) 8, 12, 9, 13, 10, 14, 11, ?

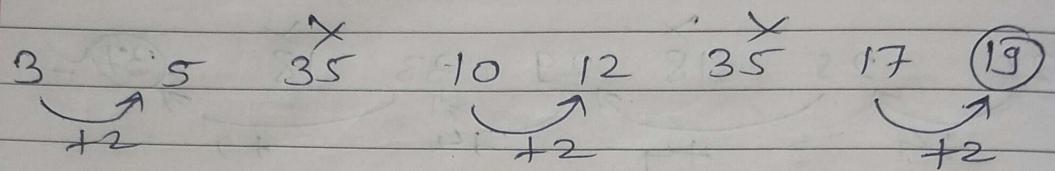


24) 36, 31, 29, 24, 22, 17, 15, ?



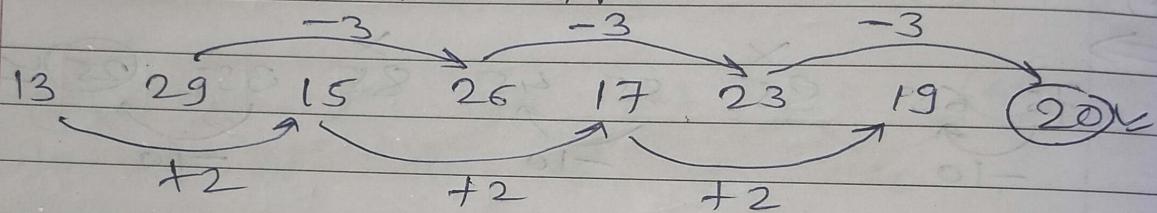
25)

3, 5, 35, 10, 12, 35, 17, ?



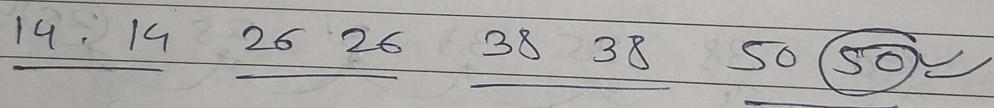
26)

13, 29, 15, 26, 17, 23, 19, ?



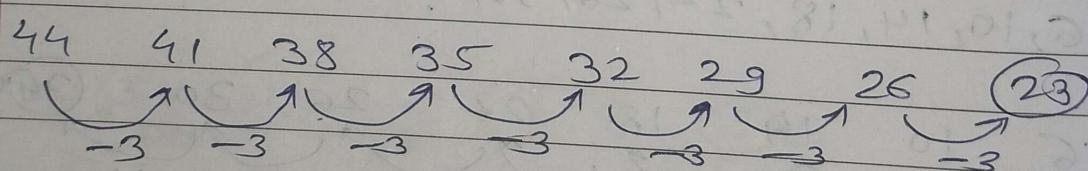
27)

14, 14, 26, 26, 38, 38, 50, ?



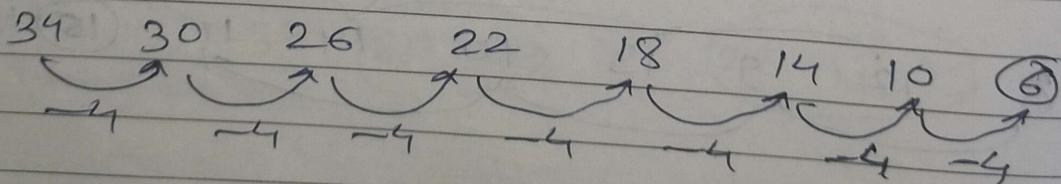
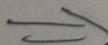
28)

44, 41, 38, 35, 32, 29, 26, ?

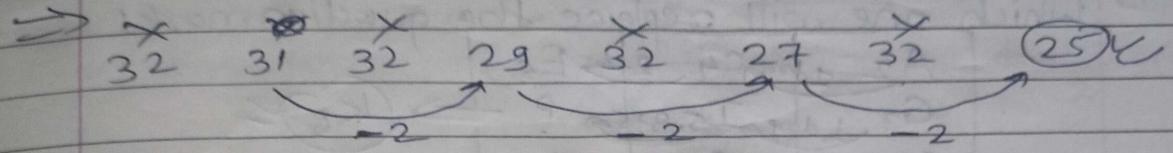


29)

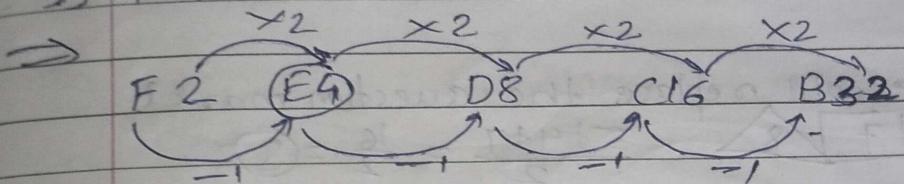
34, 30, 26, 22, 18, 14, 10, ?



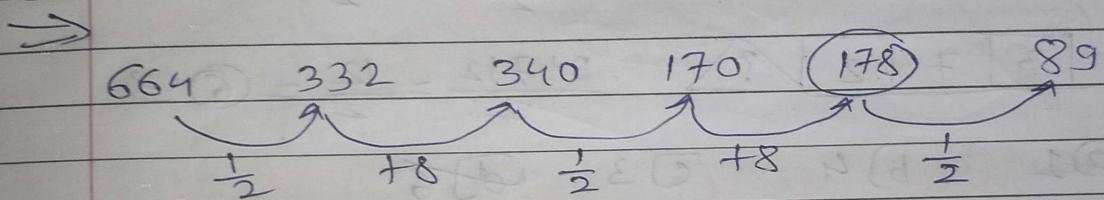
30) 32, 31, 32, 29, 32, 27, 32, ?



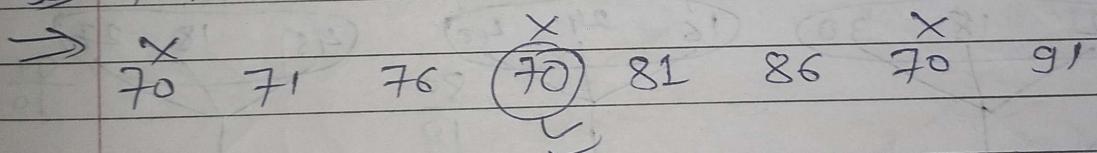
31) F2, —, D8, C16, B23,



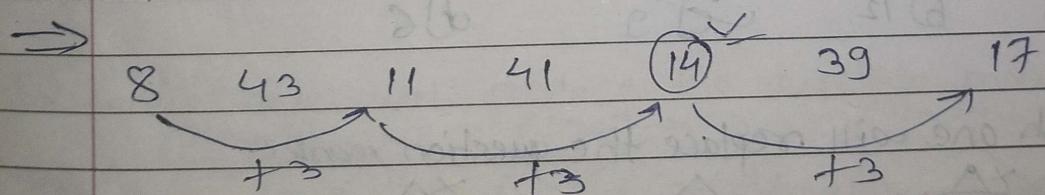
32) 664, 332, 340, 170, —, 89



33) 70, 71, 76, —, 81, 86, 70, 91



34) 8, 43, 11, 41, —, 39, 17



35) VI, 10, V, 11, —, 12, III

