1.

$$\begin{array}{lll} n=1 & \rightarrow & \cancel{a_2} = a_1 + 1 \\ n=2 & \rightarrow & \cancel{a_3} = \cancel{a_2} + 2 \\ n=3 & \rightarrow & \cancel{a_4} = \cancel{a_3} + 3 \\ & & \vdots \quad \vdots \\ n=9 & \rightarrow & + \; a_{10} = \cancel{a_9} + 9 \\ \hline \end{array}$$

$$a_{10} = a_1 + \frac{9.10}{2} = 3 + 45 = 48 \text{ olur.}$$

Cevap: D

2.

$n = 1$ için $a_2 = 1.a_1 + 1 + 1 = \overbrace{a_1}^{1} + 2 = 3$

$n = 2$ için $a_3 = 2.a_2 + 2 + 1 = 2.\underbrace{a_2}_{3} + 3 = 9$

$n = 3$ için $a_4 = 3.a_3 + 3 + 1 = 3\underbrace{a_3}_{9} + 4 = 31$

$n = 4$ için $a_5 = 4.a_4 + 4 + 1 = 4\underbrace{a_4}_{31} + 5 = 129$ olur.

Cevap: B

3.

$$\begin{array}{lll} n=2 & \rightarrow & a_2 - a_1 = 2^2 + 2 = 6 \\ n=3 & \rightarrow & a_3 - a_2 = 3^2 + 3 = 12 \\ n=4 & \rightarrow & a_4 - a_3 = 4^2 + 4 = 20 \\ n=5 & \rightarrow & + \; a_5 - a_4 = 5^2 + 5 = 30 \\ \hline \end{array}$$

$$a_5 - a_1 = 68$$

$$a_5 - 2 = 68$$

$$a_5 = 70$$

Cevap: B

4.

$$\left.\begin{array}{lll} n=1 & \rightarrow & \cancel{a_2} - 2 = a_1 \\ n=2 & \rightarrow & \cancel{a_3} - 2 = \cancel{a_2} \\ n=3 & \rightarrow & \cancel{a_4} - 2 = \cancel{a_3} \\ & & \vdots \\ n=14 & \rightarrow & + \; a_{15} - 2 = \cancel{a_{14}} \end{array}\right\} \text{14 tane}$$

$$a_{15} - 28 = a_1$$

$$a_{15} = 4 + 28 = 32 \text{ olur.}$$

Cevap: D

5.

$$\begin{array}{lll} n=1 & \rightarrow & \cancel{a_2} = 5^1.a_1 \\ n=2 & \rightarrow & \cancel{a_3} = 5^2.\cancel{a_2} \\ n=3 & \rightarrow & \cancel{a_4} = 5^3.\cancel{a_3} \\ & & \vdots \\ n=19 & \rightarrow & \times \; a_{20} = 5^{19}.\cancel{a_{19}} \\ \hline \end{array}$$

$$a_{20} = 5^{1+2+\ldots+19}.a_1$$

$$a_{20} = 5^{\frac{19.20}{2}}.5$$

$$a_{20} = 5190.5$$

$$a_{20} = 5^{191} \text{ olur.}$$

Cevap: E

6.

$$\begin{array}{lll} n=1 & \rightarrow & \frac{a_3}{a_1} = \frac{5}{1} \\ n=3 & \rightarrow & \frac{a_5}{a_3} = \frac{7}{3} \\ n=5 & \rightarrow & \frac{a_7}{a_5} = \frac{9}{5} \\ n=7 & \rightarrow & \frac{a_9}{a_7} = \frac{11}{7} \\ n=9 & \rightarrow & \frac{a_{11}}{a_9} = \frac{13}{9} \\ & & \times \\ \hline \end{array}$$

$$\frac{\cancel{a_3}}{a_1}.\frac{\cancel{a_5}}{\cancel{a_3}}.\frac{\cancel{a_7}}{\cancel{a_5}}.\frac{\cancel{a_9}}{\cancel{a_7}}.\frac{a_{11}}{\cancel{a_9}} = \frac{\cancel{5}}{1}.\frac{\cancel{7}}{3}.\frac{\cancel{9}}{\cancel{5}}.\frac{11}{\cancel{7}}.\frac{13}{\cancel{9}}$$

$$\frac{a_{11}}{a_1} = \frac{143}{3}$$

$$\frac{a_{11}}{3} = \frac{143}{3} \rightarrow a_{11} = 143$$

Cevap: B

7. $3(a_n) - 2(b_n)$

$= 3((n-1).(2n+1)) - 2((n+1)(3n+2))$

$= 3(2n^2 + n - 2n - 1) - 2(3n^2 + 2n + 3n + 2)$

$= 3(2n^2 - n - 1) - 2(3n^2 + 5n + 2)$

$= \cancel{6n^2} - 3n - 3 - \cancel{6n^2} - 10n - 4$

$= -13n - 7$

Cevap: D

8. $n = 1 \rightarrow \cancel{a_2} = \frac{a_1}{1}$

$n = 2 \rightarrow \cancel{a_3} = \frac{\cancel{a_2}}{2}$

$n = 3 \rightarrow \cancel{a_4} = \frac{\cancel{a_3}}{3}$

$\vdots$

$n = 12 \rightarrow a_{13} = \frac{\cancel{a_{12}}}{12}$

x

$a_{13} = \frac{a_1}{1.2.3.....12}$

$a_{13} = \frac{12}{12!} = \frac{12}{12.11!} = \frac{1}{11!}$ olur.

Cevap: B

9. $n = 7$ için $a_7 = \frac{1+7}{2}.\cancel{a_6}$

$n = 6$ için $\cancel{a_6} = \frac{1+6}{2}.\cancel{a_5}$

$n = 5$ için $\cancel{a_5} = \frac{1+5}{2}.\cancel{a_4}$

$n = 4$ için x $\cancel{a_4} = \frac{1+4}{2}.a_3$

$a_7 = \cancel{4}.\frac{7}{\cancel{2}}.3.\frac{5}{\cancel{2}}.a_3$

$420 = 7.3.5.a_3$

$a_3 = 4$ olur.

Cevap: D

10. $a_8 = 2^9.8!$

$a_6 = 2^7.6! \Rightarrow \frac{a_8}{a_6} = \frac{\overset{2^2}{\cancel{2^9}}.8.7.\cancel{6!}}{\cancel{2^7}.\cancel{6!}} = 4.8.7$

$= 224$

Cevap: A

11. $n = 3 \rightarrow \frac{a_4}{a_3} = 2.3 + 1 \rightarrow \frac{7}{a_3} = 7 \rightarrow a_3 = 1$

$n = 2 \rightarrow \frac{a_3}{a_2} = 2.2 + 1 \rightarrow \frac{1}{a_2} = 5 \rightarrow a_2 = \frac{1}{5}$

$n = 1 \rightarrow \frac{a_2}{a_1} = 2.1 + 1 \rightarrow \frac{\frac{1}{5}}{a_1} = 3 \rightarrow a_1 = \frac{1}{15}$

$\Rightarrow a_1 + a_2 = \frac{1}{15} + \underset{(3)}{\frac{1}{5}} = \frac{4}{15}$ olur.

Cevap: B

12. $n = 1 \rightarrow a_2 = a_1 + 2$

$n = 2 \rightarrow a_3 = a_2 + 4 = a_1 + 2 + 4 = a_1 + 6$

$n = 3 \rightarrow a_4 = a_3 + 6 = a_1 + 6 + 6 = a_1 + 12$

$\Rightarrow a_1 + a_2 + a_3 + a_4 = 32$

$a_1 + a_1 + 2 + a_1 + 6 + a_1 + 12 = 32$

$4a_1 + 20 = 32$

$4a_1 = 12$

$a_1 = 3$ olur.

Cevap: D