

نام و نام خانوادگی: ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس: .....  $\Delta$

$$a_n = n^2 + \frac{n(n-1)}{2}$$

$$100 + \frac{10 \times 1}{2} = 105 \quad \checkmark \quad (2)$$

۱

0, 1, 3, 6



$$\frac{n(n-1)}{2} = a_n$$

$$\frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 110$$

$$n = 11 \quad \checkmark \quad (2)$$

۲

0, 1, 3, 6

0, 1, 3, 6

$$a_n - a_{n-1} = a_n$$

$$11 - 1 = 10 \quad \checkmark$$

$$\frac{11}{2} (0 + 10) = 55 \quad \checkmark \quad (2)$$

۳

$$a_n = \left(\frac{1}{2}\right)^n$$

$$\frac{1}{1}, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}$$

0, 1, 3, 6

$$\frac{1}{2} - (-1) = \frac{3}{2} \quad \checkmark \quad (2)$$

۴

$$(-1)^3 - 1 \times 1 = -1 - 1 = -2$$

$$-0k + 1 = -1 \Rightarrow -0k = -1 \Rightarrow k = 1 \quad \checkmark \quad (2)$$

۵

|                                                                                                                                                                                                                                                                   |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| $a_1 + 10d - d_1 = 12$<br>$d = 5$<br>$a_1 + 20d - d_1 = 12$ ✓ (Y)                                                                                                                                                                                                 | 6  |
| $a_1 = 10$<br>$a_5 = 10$ } $a_1 + 4d = 10 \Rightarrow d = 5$<br>$a_1 = 10 = b_1$<br>$a_5 = 10 = b_5$<br>$d_b = 10$ (Y)<br>$b_n = 10n - 10$ ✓                                                                                                                      | 7  |
| $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \dots$<br>$\frac{f_{n-1}}{f_{n+1}} < \frac{1}{2} \Rightarrow 10n-1 < 4n+9$<br>$10n-1 < 4n+9 \Rightarrow 6n < 10 \Rightarrow n < \frac{10}{6} \Rightarrow n < 1.66 \Rightarrow n=1$ (Y)          | 8  |
| $\begin{cases} A+B=4 \\ 5A+2B=9 \end{cases} \Rightarrow 2A = -1 \Rightarrow A = -\frac{1}{2}$<br>$-\frac{1}{2} + B = 4 \Rightarrow B = \frac{9}{2} = 4.5$<br>$5(-\frac{1}{2}) + 2(\frac{9}{2}) = -\frac{5}{2} + 9 = \frac{13}{2}$ (Y)                             | 9  |
| $a_1 = 10$<br>$a_n + d = f   a_n = 10n + 1$<br>$d = 0$<br>$t_n = -9, -5, -1, \dots$<br>$t_1 = -9$<br>$t_2 = -5$<br>$t_3 = -1$<br>$a = 1$<br>$t_n = n^2 - n - 9$<br>$n^2 - n - 9 = 0n + 1$<br>$n^2 - 9n - 10 = 0$<br>$(n+1)(n-10) = 0$<br>$n = -1$ or $n = 10$ (Y) | 10 |