

۱) (ت) ناسازگار (ب)  $4 \times 2 \times 2 = 24$  (ب)  $A'$  (ت) سوم

۲) (ت) نادرست (ب) درست (ب) درست (ت) نادرست

۳)  $C(9, 4) = \frac{9!}{4!(9-4)!} = \frac{9!}{4!5!} = \frac{9 \times 8 \times 7 \times 6}{4 \times 3 \times 2 \times 1} = 126$

۴)  $P(7, 3) = \frac{7!}{(7-3)!3!} = \frac{7!}{4!3!} = 210$  (راه حل اول)  $\frac{7!}{4!3!} = 210$  (راه حل دوم)  $7 \times 6 \times 5 = 210$

۵)  $C(5, 3) + C(4, 3) = \frac{5!}{3!2!} + \frac{4!}{3!1!} = 10 + 4 = 14$

۶)  $S = \{(پ, پ, پ), (د, د, د), (پ, د, د), (د, پ, د), \dots, (د, د, د)\} \rightarrow n(S) = 8$  (ت) (ب)  $A = \{(پ, د, د), (د, پ, د), \dots, (د, د, د)\} \rightarrow n(A) = 4 \Rightarrow P(A) = \frac{n(A)}{n(S)} = \frac{4}{8} = \frac{1}{2}$

۷)  $n(S) = 4 \times 2 = 12$  و  $n(A) = 3 + 4 = 9 \Rightarrow P(A) = \frac{n(A)}{n(S)} = \frac{9}{12} = \frac{3}{4}$

۸)  $C(5, 2) = \frac{5!}{2!(5-2)!} = \frac{5!}{2!3!} = \frac{5 \times 4}{2 \times 1} = 10$

۹) (ت) طرح و برنامه نویسی (ب) بحث و نتیجه گیری

۱۰)  $\alpha_n = ar^{n-1} \rightarrow \alpha_n = 9 \times (\frac{1}{3})^{n-1}$  (ب)  $\alpha_{n+1} = \frac{1}{3} \alpha_n$  (ت)

۱۱)  $\alpha_1 = -1 + (-1)^1 = 0$   $\alpha_2 = -3 + (-1)^2 = -3 + 1 = -2$   $\alpha_3 = -(-2) + (-1)^3 = 2 - 1 = 1$   $\alpha_4 = -0 + (-1)^4 = -1$   $\alpha_5 = -(-1) + (-1)^5 = 1 - 1 = 0$   $\alpha_6 = -0 + (-1)^6 = -1$   $\alpha_7 = -(-1) + (-1)^7 = 1 - 1 = 0$   $\alpha_8 = -0 + (-1)^8 = -1$   $\alpha_9 = -(-1) + (-1)^9 = 1 - 1 = 0$   $\alpha_{10} = -0 + (-1)^{10} = -1$   $\alpha_{11} = -(-1) + (-1)^{11} = 1 - 1 = 0$   $\alpha_{12} = -0 + (-1)^{12} = -1$   $\alpha_{13} = -(-1) + (-1)^{13} = 1 - 1 = 0$   $\alpha_{14} = -0 + (-1)^{14} = -1$   $\alpha_{15} = -(-1) + (-1)^{15} = 1 - 1 = 0$   $\alpha_{16} = -0 + (-1)^{16} = -1$   $\alpha_{17} = -(-1) + (-1)^{17} = 1 - 1 = 0$   $\alpha_{18} = -0 + (-1)^{18} = -1$   $\alpha_{19} = -(-1) + (-1)^{19} = 1 - 1 = 0$   $\alpha_{20} = -0 + (-1)^{20} = -1$   $\alpha_{21} = -(-1) + (-1)^{21} = 1 - 1 = 0$   $\alpha_{22} = -0 + (-1)^{22} = -1$   $\alpha_{23} = -(-1) + (-1)^{23} = 1 - 1 = 0$   $\alpha_{24} = -0 + (-1)^{24} = -1$   $\alpha_{25} = -(-1) + (-1)^{25} = 1 - 1 = 0$   $\alpha_{26} = -0 + (-1)^{26} = -1$   $\alpha_{27} = -(-1) + (-1)^{27} = 1 - 1 = 0$   $\alpha_{28} = -0 + (-1)^{28} = -1$   $\alpha_{29} = -(-1) + (-1)^{29} = 1 - 1 = 0$   $\alpha_{30} = -0 + (-1)^{30} = -1$   $\alpha_{31} = -(-1) + (-1)^{31} = 1 - 1 = 0$   $\alpha_{32} = -0 + (-1)^{32} = -1$   $\alpha_{33} = -(-1) + (-1)^{33} = 1 - 1 = 0$   $\alpha_{34} = -0 + (-1)^{34} = -1$   $\alpha_{35} = -(-1) + (-1)^{35} = 1 - 1 = 0$   $\alpha_{36} = -0 + (-1)^{36} = -1$   $\alpha_{37} = -(-1) + (-1)^{37} = 1 - 1 = 0$   $\alpha_{38} = -0 + (-1)^{38} = -1$   $\alpha_{39} = -(-1) + (-1)^{39} = 1 - 1 = 0$   $\alpha_{40} = -0 + (-1)^{40} = -1$   $\alpha_{41} = -(-1) + (-1)^{41} = 1 - 1 = 0$   $\alpha_{42} = -0 + (-1)^{42} = -1$   $\alpha_{43} = -(-1) + (-1)^{43} = 1 - 1 = 0$   $\alpha_{44} = -0 + (-1)^{44} = -1$   $\alpha_{45} = -(-1) + (-1)^{45} = 1 - 1 = 0$   $\alpha_{46} = -0 + (-1)^{46} = -1$   $\alpha_{47} = -(-1) + (-1)^{47} = 1 - 1 = 0$   $\alpha_{48} = -0 + (-1)^{48} = -1$   $\alpha_{49} = -(-1) + (-1)^{49} = 1 - 1 = 0$   $\alpha_{50} = -0 + (-1)^{50} = -1$   $\alpha_{51} = -(-1) + (-1)^{51} = 1 - 1 = 0$   $\alpha_{52} = -0 + (-1)^{52} = -1$   $\alpha_{53} = -(-1) + (-1)^{53} = 1 - 1 = 0$   $\alpha_{54} = -0 + (-1)^{54} = -1$   $\alpha_{55} = -(-1) + (-1)^{55} = 1 - 1 = 0$   $\alpha_{56} = -0 + (-1)^{56} = -1$   $\alpha_{57} = -(-1) + (-1)^{57} = 1 - 1 = 0$   $\alpha_{58} = -0 + (-1)^{58} = -1$   $\alpha_{59} = -(-1) + (-1)^{59} = 1 - 1 = 0$   $\alpha_{60} = -0 + (-1)^{60} = -1$   $\alpha_{61} = -(-1) + (-1)^{61} = 1 - 1 = 0$   $\alpha_{62} = -0 + (-1)^{62} = -1$   $\alpha_{63} = -(-1) + (-1)^{63} = 1 - 1 = 0$   $\alpha_{64} = -0 + (-1)^{64} = -1$   $\alpha_{65} = -(-1) + (-1)^{65} = 1 - 1 = 0$   $\alpha_{66} = -0 + (-1)^{66} = -1$   $\alpha_{67} = -(-1) + (-1)^{67} = 1 - 1 = 0$   $\alpha_{68} = -0 + (-1)^{68} = -1$   $\alpha_{69} = -(-1) + (-1)^{69} = 1 - 1 = 0$   $\alpha_{70} = -0 + (-1)^{70} = -1$   $\alpha_{71} = -(-1) + (-1)^{71} = 1 - 1 = 0$   $\alpha_{72} = -0 + (-1)^{72} = -1$   $\alpha_{73} = -(-1) + (-1)^{73} = 1 - 1 = 0$   $\alpha_{74} = -0 + (-1)^{74} = -1$   $\alpha_{75} = -(-1) + (-1)^{75} = 1 - 1 = 0$   $\alpha_{76} = -0 + (-1)^{76} = -1$   $\alpha_{77} = -(-1) + (-1)^{77} = 1 - 1 = 0$   $\alpha_{78} = -0 + (-1)^{78} = -1$   $\alpha_{79} = -(-1) + (-1)^{79} = 1 - 1 = 0$   $\alpha_{80} = -0 + (-1)^{80} = -1$   $\alpha_{81} = -(-1) + (-1)^{81} = 1 - 1 = 0$   $\alpha_{82} = -0 + (-1)^{82} = -1$   $\alpha_{83} = -(-1) + (-1)^{83} = 1 - 1 = 0$   $\alpha_{84} = -0 + (-1)^{84} = -1$   $\alpha_{85} = -(-1) + (-1)^{85} = 1 - 1 = 0$   $\alpha_{86} = -0 + (-1)^{86} = -1$   $\alpha_{87} = -(-1) + (-1)^{87} = 1 - 1 = 0$   $\alpha_{88} = -0 + (-1)^{88} = -1$   $\alpha_{89} = -(-1) + (-1)^{89} = 1 - 1 = 0$   $\alpha_{90} = -0 + (-1)^{90} = -1$   $\alpha_{91} = -(-1) + (-1)^{91} = 1 - 1 = 0$   $\alpha_{92} = -0 + (-1)^{92} = -1$   $\alpha_{93} = -(-1) + (-1)^{93} = 1 - 1 = 0$   $\alpha_{94} = -0 + (-1)^{94} = -1$   $\alpha_{95} = -(-1) + (-1)^{95} = 1 - 1 = 0$   $\alpha_{96} = -0 + (-1)^{96} = -1$   $\alpha_{97} = -(-1) + (-1)^{97} = 1 - 1 = 0$   $\alpha_{98} = -0 + (-1)^{98} = -1$   $\alpha_{99} = -(-1) + (-1)^{99} = 1 - 1 = 0$   $\alpha_{100} = -0 + (-1)^{100} = -1$

۱۲)  $\alpha_1 = \frac{1^2}{(-1)^1} = -1$   $b_n = 1 + 2 = 12$   $c_r = \frac{r}{r} = 1 \rightarrow a_1 + b_n - c_r = -1 + 12 - 1 = 10$

۱۳)  $a + 4d = 45$   $a + 14d = 93$   $-10d = -48 \rightarrow d = \frac{-48}{-10} = 4.8$   $a + 4(4.8) = 45 \rightarrow a + 19.2 = 45 \rightarrow a = 25.8$   $a_{31} = a + (31-1)d = 25.8 + 30 \times 4.8 = 25.8 + 144 = 169.8$

۱۴)  $r, r, 4, \dots$   $S_n = \frac{n}{r} [ra + (n-1)d]$   $\alpha = r$   $d = 4 - r = 2$   $n = 14 \rightarrow S_{14} = \frac{14}{r} [r \times r + (14-1) \times 2] = 272$

\* ادامه پاسخ در صفحه ۲ \*

۱۴)  $\alpha = 25, d = 18, a_n = 401, n = ?$  (ب)  
 $a_n = \alpha + (n-1)d \rightarrow 401 = 25 + (n-1) \times 18 \rightarrow 401 = 25 + 18n - 18 \rightarrow n = 33$

۱۵)  $10, \square, \square, \square, 24$   
 $d = \frac{a_5 - a_1}{5 - 1} = \frac{24 - 10}{5 - 1} = \frac{14}{4} = 3.5 \Rightarrow 10, 13.5, 17, 20.5, 24$

۱۶)  $A \xrightarrow{B} C, A \xrightarrow{D} C \Rightarrow 3 \times 4 + 3 \times 2 = 12 + 6 = 18$  طریق

۱۷)  $c(v, 3) = \frac{v!}{3!(v-3)!} = \frac{v!}{3! \times 4!} = \frac{5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1} = 35$

۱۸)  $-\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \frac{1}{16}$  (جواب)  $a_1 = (-\frac{1}{2})^1 = -\frac{1}{2}, a_2 = (-\frac{1}{2})^2 = \frac{1}{4}$   
 $a_3 = (-\frac{1}{2})^3 = -\frac{1}{8}, a_4 = (-\frac{1}{2})^4 = \frac{1}{16}$  (حاصل)

۱۹)  $1, 3, 5, 7, \dots$   
 $\alpha = 1, d = 3 - 1 = 2, n = 3$   
 $S_n = \frac{n}{2} [2\alpha + (n-1)d]$   
 $S_3 = \frac{3}{2} [2 \times 1 + (3-1) \times 2] = 9$

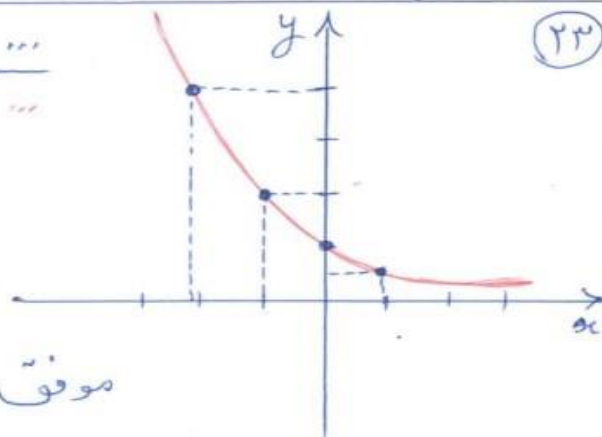
۲۰)  $5, \square, \square, \square, 113$   
 $\alpha_1, \alpha_5$   
 $\alpha_5 = \alpha r^{5-1} \rightarrow 113 = 5r^4 \rightarrow r^4 = \frac{113}{5} = 22.6 \rightarrow r = 2.2$

۲۱)  $1, 3, 9, \dots$   
 $\alpha = 1, r = 3, n = 4$   
 $S_n = \alpha \times \frac{1-r^n}{1-r}$   
 $S_4 = 1 \times \frac{1-3^4}{1-3} = 1 \times \frac{-80}{-2} = 40$

۲۲) ا)  $3^{\frac{1}{5}} = \sqrt[5]{3}$  ب)  $4^{\frac{1}{9}} = \sqrt[9]{4}$  پ)  $\sqrt[3]{25} = 25^{\frac{1}{3}}$  ت)  $\sqrt[10]{37} = 37^{\frac{1}{10}}$

۲۳)  $y = (\frac{1}{2})^x$

x	...	-2	-1	0	1	2	...
y	...	4	2	1	1/2	1/4	...



موفق و شاد باشید - رضایی