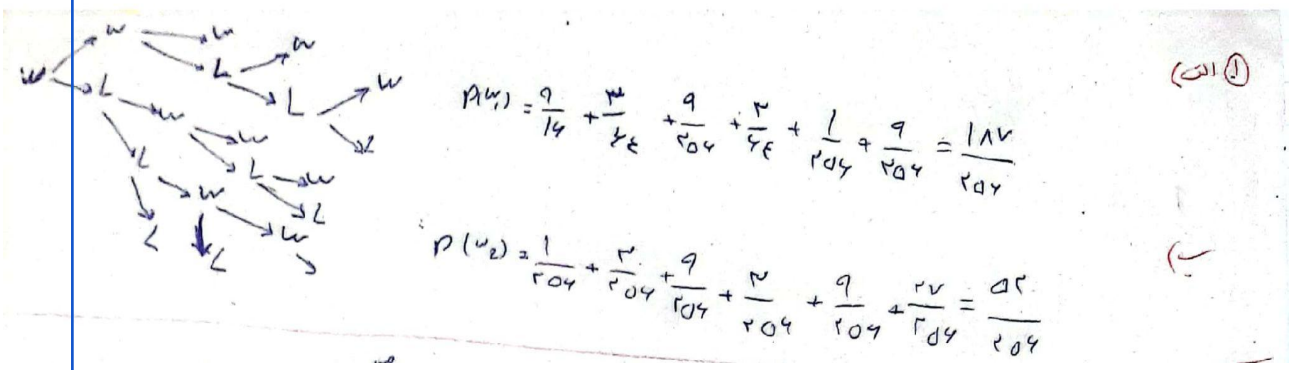
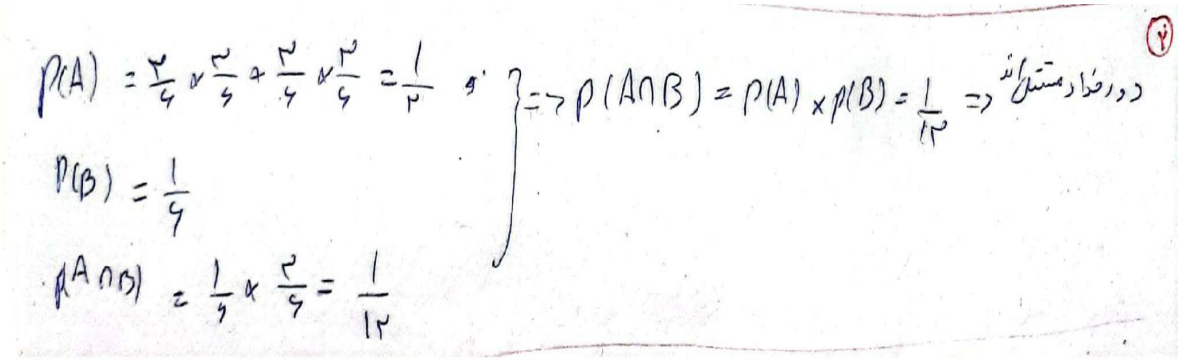
به نامه خدا

پاسخ تمرین سری چهارم

سوال ۱)



سوال ۲)

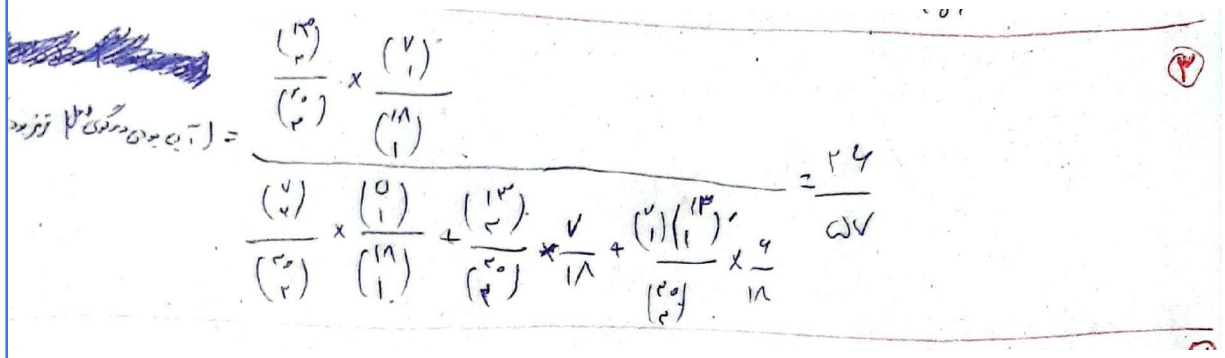


سوال۳)

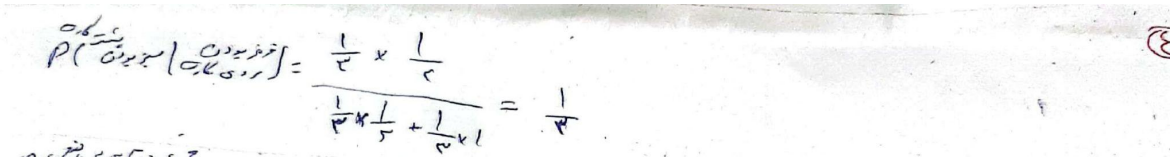
راحل اول)

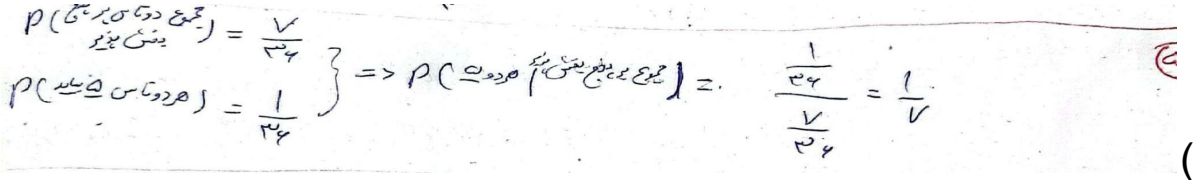
P=(13/20 * 12/19 * 7/18) / (7/20)

راحل دوم)



سوال۴)





سوال ۵)

سوال۶)

امید ریاضی برای جایزه = $0.1^2 * 10^6 - 15*10^3 = 10^4 - 1.5*10^4 = -0.5 * 10^3$

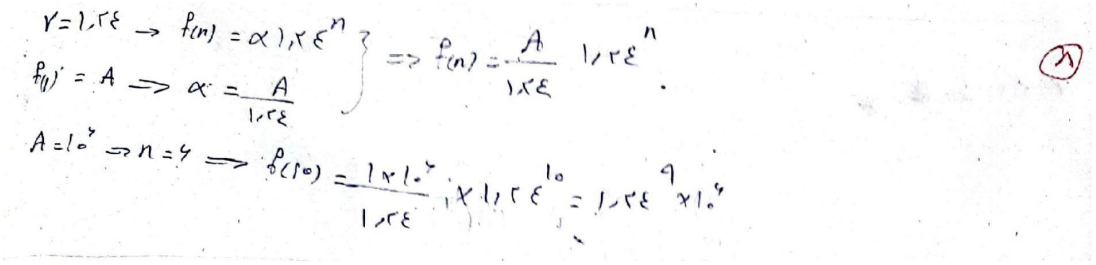
بند ب:

امید ریاضی دریافت جایزه = $0.1^2 * 10^6 + (1-0.1^2)*0.1^2*10^6 - 15*10^3 =$

$= 10^4 (1 + 1 - 0.01) - 1.5*10^4$ این بار سود می دهد

سوال ۷)

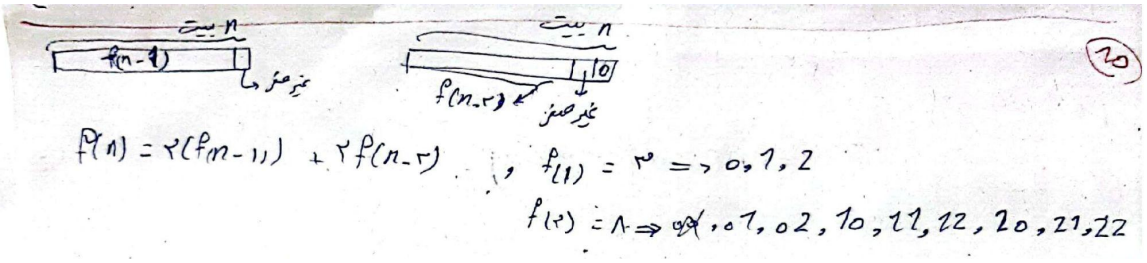
سوال۸)



سوال ۹)

$$\begin{cases} f(n) = 2f(n-1) + f(n-2) \\ f(1) = 0 \\ f(2) = 2 \\ f(3) = 0 \\ f(4) = 4 \\ f(0) = 1 \end{cases}$$

سوال ۱۰)



$$f(n) = 2(f_{n-1}) + 2f(n-2) \quad , \quad f(1) = 3 \Rightarrow 0, 1, 2$$

$$f(2) = 8 \Rightarrow 00, 01, 02, 10, 11, 12, 20, 21, 22$$

سوال ۱۱)

معادله مشخصه : $r^2 - 2r - 2 = 0 \Rightarrow r = 1 \pm \sqrt{3}$

$$f(n) = \alpha_1 (1+\sqrt{3})^n + \alpha_2 (1-\sqrt{3})^n$$

$$\begin{cases} f(1) = 3 = \alpha_1 (1+\sqrt{3}) + \alpha_2 (1-\sqrt{3}) = 3 \\ f(2) = 8 = \alpha_1 (1+\sqrt{3})^2 + \alpha_2 (1-\sqrt{3})^2 \end{cases} \Rightarrow \begin{cases} \alpha_1 = \dfrac{2\sqrt{3}+3}{6} \\ \alpha_2 = \dfrac{3-2\sqrt{3}}{6} \end{cases}$$

$$f(n) = \frac{2\sqrt{3}+3}{6} (1+\sqrt{3})^n + \frac{3-2\sqrt{3}}{6} (1-\sqrt{3})^n$$