1) $1 / 1*4 + 1 / 4*7 + 1 / 7*10 + \ldots + 1/(3n-2)(3n+1) + \ldots$

решение

$1/(3n-2)(3n+1) = \frac{1}{3} (1/(3n-2) - 1/(3n+1))$

$S_n = \ldots = n/(3n+1)$

2) $1 + 2*\frac{1}{3} + 3*(\frac{1}{3})^2 + 4*(\frac{1}{3})^3 + \ldots + (n-1)(\frac{1}{3})^{(n-2)} + n(\frac{1}{3})^{(n-1)} + \ldots$

решение

$S_n = 1 + 2*\frac{1}{3} + 3*(\frac{1}{3})^2 + 4*(\frac{1}{3})^3 + \ldots + (n-1)(\frac{1}{3})^{(n-2)} + n(\frac{1}{3})^{(n-1)} \quad |*\frac{1}{3}$

$\frac{1}{3}*S_n = 1/3 + 2*(\frac{1}{3})^2 + 3*(\frac{1}{3})^3 + 4*(\frac{1}{3})^4 + \ldots + (n-1)(\frac{1}{3})^{(n-1)} + n(\frac{1}{3})^{(n)}$

$\frac{1}{3}*S_n = 1/3 + [(\frac{1}{3})^2 + (\frac{1}{3})^2] + [(\frac{1}{3})^3 + 2*(\frac{1}{3})^3] + \ldots + [(\frac{1}{3})^{(n-1)} + (n-2)(\frac{1}{3})^{(n-1)}] + [(\frac{1}{3})^{(n)} + (n-1)(\frac{1}{3})^{(n)}]$

$\frac{1}{3}*S_n = 1/3 + (\frac{1}{3})^2 + (\frac{1}{3})^3 + \ldots + (\frac{1}{3})^{(n-1)} + (\frac{1}{3})^{(n)} + (\frac{1}{3})^2 + 2*(\frac{1}{3})^3 + \ldots + (n-2)(\frac{1}{3})^{(n-1)} + (n-1)(\frac{1}{3})^{(n)}]$

$\frac{1}{3}*S_n = (1-(\frac{1}{3})^n)/2 + (\frac{1}{3})^2 [S_n - n*(\frac{1}{3})^{(n-1)}]$

$S_n = [1 - (\frac{1}{3})^n - 2n*(\frac{1}{3})^{(n+1)}]*9/2*2$

Ответ 9/4