```
cc := CoefficientList[Series[x / Log[1 + x], {x, 0, 30}], x]
cc2 := CoefficientList[Series[x / Log[1 - x], {x, 0, 30}], x]
FX[n_] := N[Sum[Log[1 + n] cc[[k + 1]] n ^ (k), {k, 0, 30}]]
FX2[n_] := N[Sum[Log[1 - n] cc2[[k + 1]] n ^ (k), {k, 0, 30}]]

FX2[.3]
```

0.3

```
Series[Log[1 + x], {x, 0, 20}]
Series[Log[1 - x], {x, 0, 20}]
Series[Log[-1 + x], {x, 0, 20}]
Series[Log[-1 - x], {x, 0, 20}]
```

$$x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} - \frac{x^6}{6} + \frac{x^7}{7} - \frac{x^8}{8} + \frac{x^9}{9} - \frac{x^{10}}{10} + \frac{x^{11}}{11} - \frac{x^{12}}{12} + \frac{x^{13}}{13} - \frac{x^{14}}{14} + \frac{x^{15}}{15} - \frac{x^{16}}{16} + \frac{x^{17}}{17} - \frac{x^{18}}{18} + \frac{x^{19}}{19} - \frac{x^{20}}{20} + O[x]^{21}$$

$$-x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \frac{x^5}{5} - \frac{x^6}{6} - \frac{x^7}{7} - \frac{x^8}{8} - \frac{x^9}{9} - \frac{x^{10}}{10} - \frac{x^{11}}{11} - \frac{x^{12}}{12} - \frac{x^{13}}{13} - \frac{x^{14}}{14} - \frac{x^{15}}{15} - \frac{x^{16}}{16} - \frac{x^{17}}{17} - \frac{x^{18}}{18} - \frac{x^{19}}{19} - \frac{x^{20}}{20} + O[x]^{21}$$

$$i\pi - x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \frac{x^5}{5} - \frac{x^6}{6} - \frac{x^7}{7} - \frac{x^8}{8} - \frac{x^9}{9} - \frac{x^{10}}{10} - \frac{x^{11}}{11} - \frac{x^{12}}{12} - \frac{x^{13}}{13} - \frac{x^{14}}{14} - \frac{x^{15}}{15} - \frac{x^{16}}{16} - \frac{x^{17}}{17} - \frac{x^{18}}{18} - \frac{x^{19}}{19} - \frac{x^{20}}{20} + O[x]^{21}$$

$$i\pi + x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} - \frac{x^6}{6} + \frac{x^7}{7} - \frac{x^8}{8} + \frac{x^9}{9} - \frac{x^{10}}{10} + \frac{x^{11}}{11} - \frac{x^{12}}{12} + \frac{x^{13}}{13} - \frac{x^{14}}{14} + \frac{x^{15}}{15} - \frac{x^{16}}{16} + \frac{x^{17}}{17} - \frac{x^{18}}{18} + \frac{x^{19}}{19} - \frac{x^{20}}{20} + O[x]^{21}$$