$S_0 = 5.00$

$S_1 = 5 - \frac{5}{4} = 3.75$

$S_2 = 5 - \frac{5}{4} + \frac{5}{4^2} = 4.0625$

$S_3 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} = 3.984375$

$S_4 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} = 4.00390625$

$S_5 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} = 3.9990234375$

$S_6 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} = 4.00024414062$

$S_7 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} = 3.99993896484$

$S_8 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} = 4.00001525879$

$S_9 = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} = 3.9999961853$

$S_{10} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} = 4.00000095367$

$S_{11} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} = 3.99999976158$

$S_{12} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} = 4.0000000596$

$S_{13} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} = 3.9999999851$

$S_{14} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} + \frac{5}{4^{14}} = 4.00000000373$

$S_{15} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} + \frac{5}{4^{14}} - \frac{5}{4^{15}} = 3.99999999907$

$S_{16} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} + \frac{5}{4^{14}} - \frac{5}{4^{15}} + \frac{5}{4^{16}} = 4.00000000023$

$S_{17} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} + \frac{5}{4^{14}} - \frac{5}{4^{15}} + \frac{5}{4^{16}} - \frac{5}{4^{17}} = 3.99999999994$

$S_{18} = 5 - \frac{5}{4} + \frac{5}{4^2} - \frac{5}{4^3} + \frac{5}{4^4} - \frac{5}{4^5} + \frac{5}{4^6} - \frac{5}{4^7} + \frac{5}{4^8} - \frac{5}{4^9} + \frac{5}{4^{10}} - \frac{5}{4^{11}} + \frac{5}{4^{12}} - \frac{5}{4^{13}} + \frac{5}{4^{14}} - \frac{5}{4^{15}} + \frac{5}{4^{16}} - \frac{5}{4^{17}} + \frac{5}{4^{18}} = 4.00000000001$

$$S_0 = 2.00$$

$$S_1 = 2 + \frac{4}{5} = 2.8$$

$$S_2 = 2 + \frac{4}{5} + \frac{2^3}{5^2} = 3.12$$

$$S_3 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} = 3.248$$

$$S_4 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} = 3.2992$$

$$S_5 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} = 3.31968$$

$$S_6 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} = 3.327872$$

$$S_7 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} = 3.3311488$$

$$S_8 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} = 3.33245952$$

$$S_9 = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} = 3.332983808$$

$$S_{10} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} = 3.3331935232$$

$$S_{11} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} = 3.33327740928$$

$$S_{12} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} = 3.33331096371$$

$$S_{13} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} = 3.33332438548$$

$$S_{14} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} = 3.33332975419$$

$$S_{15} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} = 3.33333190168$$

$$S_{16} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} + \frac{2^{17}}{5^{16}} = 3.33333276067$$

$$S_{17} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} + \frac{2^{17}}{5^{16}} + \frac{2^{18}}{5^{17}} = 3.33333310427$$

$$S_{18} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} + \frac{2^{17}}{5^{16}} + \frac{2^{18}}{5^{17}} + \frac{2^{19}}{5^{18}} = 3.33333324171$$

$$S_{19} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} + \frac{2^{17}}{5^{16}} + \frac{2^{18}}{5^{17}} + \frac{2^{19}}{5^{18}} + \frac{2^{20}}{5^{19}} = 3.33333329668$$

$$S_{20} = 2 + \frac{4}{5} + \frac{2^3}{5^2} + \frac{2^4}{5^3} + \frac{2^5}{5^4} + \frac{2^6}{5^5} + \frac{2^7}{5^6} + \frac{2^8}{5^7} + \frac{2^9}{5^8} + \frac{2^{10}}{5^9} + \frac{2^{11}}{5^{10}} + \frac{2^{12}}{5^{11}} + \frac{2^{13}}{5^{12}} + \frac{2^{14}}{5^{13}} + \frac{2^{15}}{5^{14}} + \frac{2^{16}}{5^{15}} + \frac{2^{17}}{5^{16}} + \frac{2^{18}}{5^{17}} + \frac{2^{19}}{5^{18}} + \frac{2^{20}}{5^{19}} + \frac{2^{21}}{5^{20}} = 3.33333331867$$