Find the recurrence relationship between terms for the series given below. Use the designated indices specified in the equations.

\[ \frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \ldots = T_1 + T_3 + T_5 + T_7 + T_9 + T_{11} + \ldots \]

For \( i = 3, 5, 7, \ldots \), \( f(i) = \frac{T_i}{T_{i-2}} = \)

\[ J_0(x) = 1 - \frac{1}{2}x^2 \left( \frac{1}{1!} \right)^2 + \frac{1}{4}x^4 \left( \frac{1}{2!} \right)^2 - \frac{1}{4}x^6 \left( \frac{1}{3!} \right)^2 + \frac{1}{8}x^8 \left( \frac{1}{4!} \right)^2 - \ldots = T_0 + T_1 + T_2 + T_3 + T_4 + \ldots \]

For \( i = 1, 2, 3, 4, \ldots \), \( f(i, x) = \frac{T_i}{T_{i-1}} = \)

\[ \sqrt{1-x} = 1 - \frac{1}{2}x - \frac{1}{2} \cdot \frac{1}{4}x^2 - \frac{1}{2} \cdot \frac{1}{4} \cdot \frac{3}{6}x^3 - \frac{1}{2} \cdot \frac{3}{6} \cdot \frac{5}{8}x^4 - \ldots = T_0 + T_1 + T_2 + T_3 + T_4 + \ldots \]

For \( i = 1, 2, 3, 4, \ldots \), \( f(i, x) = \frac{T_i}{T_{i-1}} = \)

\[ \text{ctnh}^{-1}x = \frac{1}{x} + \frac{1}{3x^3} + \frac{1}{5x^5} + \frac{1}{7x^7} + \ldots = T_1 + T_3 + T_5 + T_7 + \ldots \]

For \( i = 3, 5, 7, \ldots \), \( f(i, x) = \frac{T_i}{T_{i-2}} = \)

\[ \sin^{-1}x = x + \frac{1}{2} \cdot \frac{3}{3}x^3 + \frac{1}{2} \cdot \frac{3}{4} \cdot \frac{5}{5}x^5 + \frac{1}{2} \cdot \frac{3}{4} \cdot \frac{5}{6} \cdot \frac{7}{7}x^7 + \ldots = T_1 + T_3 + T_5 + T_7 + \ldots \]

For \( i = 3, 5, 7, \ldots \), \( f(i, x) = \frac{T_i}{T_{i-2}} = \)