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Determine if the geometric series converges or diverges. If it converges, find its sum.

$$1 + \frac{11}{12} + \left(\frac{11}{12}\right)^2 + \left(\frac{11}{12}\right)^3 + \cdots + \left(\frac{11}{12}\right)^n + \cdots$$

The geometric series $a + ar + ar^2 + ar^3 + \cdots + ar^{n-1} + \cdots = \sum_{n=1}^{\infty} ar^{n-1}$ converges to the sum $\frac{a}{1-r}$ if $|r| < 1$, and diverges if $|r| \geq 1$.

Notice that the given series is a geometric series where $a = 1$ and $r = \frac{11}{12}$.

From the definition above, the series converges, since the absolute value of r, $\left|\frac{11}{12}\right|$, is less than 1.

The series will converge to the sum $\frac{a}{1-r}$. Substitute the values of a and r into this formula and evaluate to find the sum.

$$\frac{a}{1-r} = \frac{(1)}{1-\left(\frac{11}{12}\right)} = 12$$

Thus, the series converges and its sum is 12.