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LT13: Determine whether or not an infinite series is geometric and, if so (and it converges), find its sum.

1. Given the geometric series

$$\sum_{n=1}^{\infty} 20 \left(\frac{1}{4}\right)^n$$

(a) What is the first term in the series, a?

(a) ___5___

(b) What is the constant ratio, r?

(b) ___$\frac{1}{4}$___

(c) Does the series converge?

$$r < 1$$

(c) ___yes___

(d) IF the series is convergent, find its sum. If it is not, write DNE.

(d) ___$\frac{20}{3}$___

$$S = \frac{a}{1-r} \qquad S = \frac{5}{1-\frac{1}{4}} = \frac{5}{\frac{3}{4}} = \frac{20}{3}$$