## Algebra 2

11-04 Finding Sums of Infinite Geometric Series

Find the partial sums for $n=1,2,3,4,5$ and describe what happens to $S_{n}$ as $n$ increases.
$\frac{1}{5}+\frac{1}{10}+\frac{1}{20}+\frac{1}{40}+\frac{1}{80}+\cdots$
$4+\frac{12}{5}+\frac{36}{25}+\frac{108}{125}+\frac{324}{625}+\cdots$

## Sum of an infinite geometric series

$$
S=\frac{a_{1}}{1-r}
$$

- $|r|<1$
- If $|r|>1$, then no sum ( $\infty$ )

> Find the sum
> $\sum_{i=1}^{\infty} 2(0.1)^{i-1}$
> $2+\frac{6}{4}+\frac{18}{16}+\frac{54}{64}+\cdots$
$\qquad$

A pendulum that is released and swings freely travels 100 centimeters on the first swing. On each successive swing, the pendulum travels $96 \%$ of the distance of the previous swing. What is the total distance the pendulum travels?

Write 0.27272727 ... as a fraction.

Write $32.323232 \ldots$ as a fraction.

623 \#1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 25, 27, 29, 31, 33, 35, 37, 39, $41=20$

