Poster: **<u>Infinite Series – Finite Sum</u>**
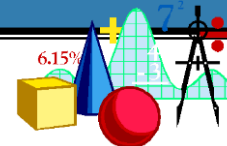
If you mowed half your lawn today, half of what's left tomorrow, then half of that the next day and so on, how long would it take to mow your lawn? Would all of your lawn ever get mowed?

Find the sum of the first two fractions in the following series, then the first three, the first four, etc.

$$1/2 + 1/4 + 1/8 + 1/16 + 1/32 \dots$$

$$1/2 + 1/4 = ?$$
$$1/2 + 1/4 + 1/8 = ?$$
$$1/2 + 1/4 + 1/8 + 1/16 = ?$$

Record your sums in a table. Look for a point where the sums reach a limit. Repeat the study using this series.

$$1/3 + 1/6 + 1/12 + 1/24 + 1/48 \dots$$

Devise a method to illustrate the results of your research using a geometric figure such as a square or rectangle. Consider dividing the geometric figure into appropriate fractional areas for the above series.

Make an attractive poster of your geometric figures. Include a report explaining how your figures illustrate an infinite series with a finite sum. Display it in the classroom.

Extension: *Define your own series and discover its limits.*