Brain Twister PRACTICE

Sheila just won the raffle at the county fair and the prize was a case of Gummybear candy. She loves Gummybears. On Monday she ate just one. On Tuesday she ate twice as many (2). On Wednesday she ate twice as many as Tuesday (4). If she continues this pattern,

1) how many Gummybears will be missing from her case of Gummybears after 7 days?

2) how many will be missing after 10 days?

3) Explain in words how you found the answer to #1 and #2 above.

The number of bears eaten each day forms a number SEQUENCE. To find the answer you had to add up all of the numbers of each day. The numbers for each day are called TERMS of the sequence. This sequence is known as a GEOMETRIC SEQUENCE, because the ratio between every two terms is the same number, in this case, 2.

There is a nifty formula that can be used to find the sum of all of the terms of a geometric sequence. That formula is shown below:

$$S = \frac{t_1(1-r^n)}{1-r}$$

where S is the sum, r is the ratio between terms, n is the number of terms, and t_1 is the first term.

4) In the Gummybear problem #1, what would be the values for r, n and t_1?
Use this information with the formula to check your answer to the Gummybear problem.