$$\sum_{n=0}^{\infty} r^n = \frac{1}{1-r} \qquad \text{MEMORIZE} \qquad \sum_{n=0}^{\infty} r^n = 1 + r + r^2 + r^3 + \cdots$$

In a vacation city, the total annual spending by the visitors is 250 million dollars. Approximately 80% of that revenue is spent again in the city, and so on. Write the total amount of spending generated in the city due to the 250 million dollars initially spent by the visitors.

$$\sum_{n=0}^{\infty} r^n = \frac{1}{1-r} \qquad \text{MEMORIZE} \qquad \sum_{n=0}^{\infty} r^n = 1 + r + r^2 + r^3 + \cdots$$

A super ball is dropped from a height of h feet. After hitting the ground, it rebounds to a height of 75% of h and then continues to rebound to 75% of its former height each bounce. If the total distance traveled by the ball before it comes to rest is 560 feet, find the initial height the ball was dropped from.

$$\sum_{n=0}^{\infty} r^n = \frac{1}{1-r} \qquad \text{MEMORIZE} \qquad \sum_{n=0}^{\infty} r^n = 1 + r + r^2 + r^3 + \cdots$$

In an experiment, a scientist adds a batch of 1200 active bacteria to a sample every hour. The fraction of bacteria that remain active in the sample after t hours is $f(t) = e^{-0.4t}$. If the experiment continues indefinitely, approximately how many active bacteria will eventually be present in the sample, just after a batch of active bacteria is added?