

Answer on Question #65970 – Math – Algebra

Question

The number of bacteria in a certain culture doubles every hour. If there were 30 bacteria present in the culture originally, how many bacteria will be present at the end of 18th hour?

Solution

The number of bacteria at any moment of time can be described by the power law:

$$N(k) = N_0 \times 2^k,$$

where $N_0 = 30$ is the number of bacteria at the beginning, k is the period of time passed (in hours).

Therefore, at the end of 18th hour:

$$N(18) = 30 \times 2^{18} = 7864320 \approx 7.86 \times 10^6$$

Answer: 7.86 million.