

- A biologist begins with 1000 bacteria, and the population doubles every hour. Find the formula of the form $P(t) = P_0 a^t$ that describes the growth of the bacteria culture.

$$P(0) = P_0 a^0 = P_0 = 1000$$

\uparrow
 $a^0 = 1$

AFTER 1 HOUR, THERE ARE 2000 BACTERIA.
(THE POP. DOUBLES EVERY HOUR!)

$$P(1) = 1000a = 2000 \Rightarrow a = 2$$

$$P(t) = 1000 (2^t)$$