The equation $N(m) = 65(Q)^{\frac{m}{4}}$ gives the predicted population $N(m)$, in thousands, of a certain bacteria colony m minutes after the initial measurement, where Q is a constant greater than 1. The predicted population increases by $p\%$ every 120 seconds. What is the value of p in terms of Q?

Options

(A) $\quad 100\left(Q^{\frac{1}{2}} + 1\right)$

(B) $\quad 100\left(Q^{30} + 1\right)$

(C) $\quad 100\left(Q^{\frac{1}{2}} - 1\right)$

(D) $\quad 100\left(Q^{30} - 1\right)$

Correct Answer: (C).