2. Previous Answers LarCalcET6 3.3.092. (2714790)

[redacted]

Tuesday, Oct 04, 12:13AM

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A population of 420 bacteria is introduced into a culture and grows in number according to the equation below, where t is measured in hours. Find the rate at which the population is growing when $t = 5$. (Round your answer to two decimal places.)

$$P(t) = 420\left(1 + \frac{4t}{38 + t^2}\right)$$

$$P(t) = 420 + \frac{1680t}{38+t^2}$$

$$P'(t) = \frac{(38+t^2)(1680) - (1680t)(2t)}{(38+t^2)^2}$$

$P'(5) =$ 780.53 ✗ 5.50 bacteria/hour