b. [5 points] After climbing the globe, Gabe jumps onto a small ferris wheel. Let $H(t)$ be his height, in inches, above the ground $t$ seconds after Gabe jumped, where

$$H(t) = 12 + 9 \cos \left( \frac{\pi}{75} (t - 120) \right).$$

Find the smallest positive value of $t$ at which Gabe’s height above the ground is 10.5 inches. Clearly show each step of your algebraic work. Give your answer in exact form.

Answer: $t = \underline{\text{[Blank]}}$

3. [5 points] Let

$$B(k) = e^{-4k^2} \tan(k + 3).$$

Use the limit definition of the derivative to write an explicit expression for $B'(5)$. Your answer should not involve the letter $B$. Do not attempt to evaluate or simplify the limit. Please write your final answer in the answer box provided below.

Answer: $B'(5) = \underline{\text{[Blank]}}$