1. A cardiac monitor is used to measure the heart rate of a patient after surgery. It compiles the number of heartbeats after \( t \) minutes. When the data in the table is graphed the tangent line represents the heart rate in beats per minute. Use the data to estimate the patient’s heat rate after 42 minutes using the secant line between the points with the given values of \( t \)

(a) \( t = 36 \) and \( t = 42 \)
\[
\frac{2948 - 2530}{42 - 36} = 69.67 \text{ beats/min}
\]

(b) \( t = 38 \) and \( t = 42 \)
\[
\frac{2948 - 2661}{42 - 38} = 71.75 \text{ beats/min}
\]

(c) \( t = 40 \) and \( t = 42 \)
\[
\frac{2948 - 2806}{42 - 40} = 71 \text{ beats/min}
\]

(d) \( t = 42 \) and \( t = 44 \).
\[
\frac{3080 - 2948}{44 - 42} = 66 \text{ beats/min}
\]

What are your conclusions?
The patient’s heart rate increases to about 71 beats per minute before \( t = 42 \) then decreases to 66 after 42 minutes.