# MAT125, Paper Homework CM

A cardiac monitor measures the heart rate of a patient after surgery. It counts the number of heartbeats that have occured after t minutes. If we graph the data in the table, the slope of the tangent line at a certain time t will represent the heart rate in beats per minute at time t. The monitor estimates the slope of the tangent line by computing slopes of secant lines. (Drawing the graph is not necessary.)

t (minutes)	36	38	40	42	44
Heartbeats	2530	2661	2806	2948	3080
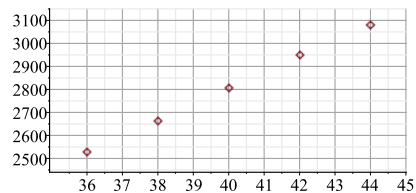
1. Use the data in the table above, compute the slope of the secant lines between the points at the following pairs of times:

    (a) $t = 36$ and $t = 42$

    (b) $t = 38$ and $t = 42$

    (c) $t = 40$ and $t = 42$

    (d) $t = 44$ and $t = 42$

2. Using the slopes from the previous part, estimate the patient's heart rate 42 minutes after surgery. Write at least one sentence justifying your estimate.