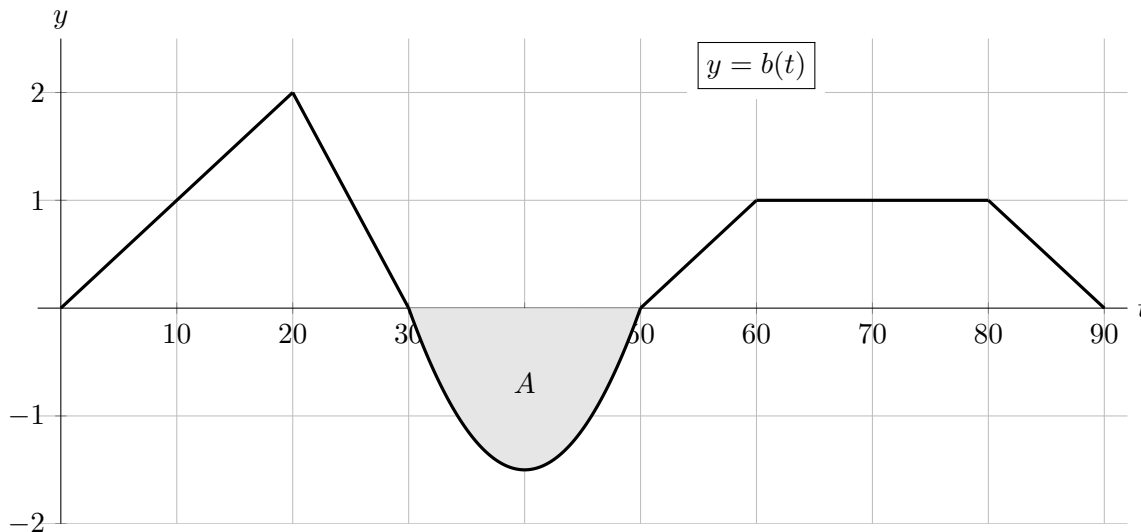


5. [10 points] After a long day filming a space walk scene for a movie, an actress attends a loud rock concert. Her fancy new watch monitors her stress levels during the concert. Among other data, it outputs the rate of change in her heart rate. Let $b(t)$ be the rate of change in her heart rate (in beats/minute²) t minutes after the concert begins. A graph of $b(t)$ is given below. The area of the shaded region A is 20.



Let $B(t)$ be the actress's heart beat (in beats per minute) t minutes after the concert begins. Suppose that her heart rate 60 minutes into the concert is 80 beats/minute. Sketch a detailed graph of $B(t)$ for $0 \leq t \leq 90$. Pay careful attention to where your graph is differentiable, increasing/decreasing, and concave up/concave down.

Solution:

