

8. [12 points] In class, Chris' calculus professor is well known to cover material at a rate $m(t) = \frac{1}{12(t-20)^{2/3}}$ textbook sections/minute, where t is the time in minutes since the start of class.

(a) [2 of 12 points] What is the meaning of the integral $\int_0^{80} m(t) dt$ (include units in your explanation)?

(b) [4 of 12 points] How many sections would you estimate the professor covers in the first minute of class? In the 20th minute? Why?

(c) [6 of 12 points] Find exactly (that is, by hand) the value of $\int_0^{80} m(t) dt$.