Answer both questions below. To get full credit, you must **justify your answers**;
just writing an answer, even if correct, will not earn full points.

1. A coffee grower has a number of civets he uses to make Kopi Luwak ("civet coffee"— if you don't know what this is, you don't want to). The amount of coffee beans they process decreases approximately linearly over the course of a day, as $c(t) = 80 - 3t$ kg per hour (there are a lot of civets). How many kilograms of coffee are produced in a day? (Hint: this is an integral, and there are 24 hours in a day.)

2. Write a definite integral which corresponds to the limit

$$\lim_{n \to \infty} \frac{2}{n} \sum_{k=1}^{n} \left(3 + \frac{k}{n} \right) \ln \left(2 + \frac{k}{n} \right).$$

You **do not** have to evaluate the integral.