9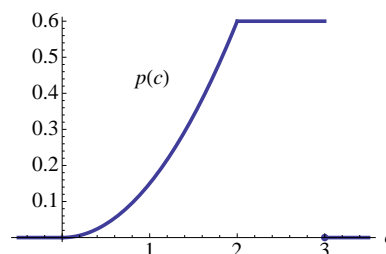. [7 points] Thanks to the Math Department's acquisition of a coffee tank in October, there are now 300 cups of coffee available to the graduate students each day.

The department wants to assess how much of the coffee is drunk and how much is wasted. Let c be the amount of coffee drunk in one day, measured in hundreds of cups of coffee. The probability density function for c is given by

$$p(c) = \begin{cases} \frac{3}{20}c^2 & \text{for } 0 \le c \le 2 \\[2mm] \frac{3}{5} & \text{for } 2 \le c \le 3 \\[2mm] 0 & \text{otherwise.} \end{cases}$$

a. [4 points] Find the mean of the amount of coffee drunk in one day. Include units. Show all your work.

b. [3 points] Find the median of the amount of coffee drunk in one day. Include units. Show all your work.