4. (12 points) Problems (a) and (b) below are independent of each other.

   (a) (6 pts.) Suppose the function $r$ gives the number of customers per day going to a new ice-cream store that just opened near campus. (Assume $t$ is measured in days since the opening and that we are modeling the situation by a continuous function, $r$.) *IMPORTANT: The answers to (i) and (ii) should include clear units, and should be given using words understandable to someone who has never taken calculus.*

   (i) What does $\int_0^{20} r(t)\ dt$ represent?

   (ii) If each customer spends on average of \$3.50 in the store, what does the following expression represent?

$$\frac{3.5}{20}\int_0^{20} r(t)\ dt$$

   (b) (6 points) If the average value of the function $d(x) = 7/x^2$ on the interval $[1, c]$ is equal to 1, what is the value of $c$?