Extra exercise

Let X be exponentially distributed with mean $1/\lambda$

a) Use the definition of conditional expectation on page 97 in the textbook to find $E[X \mid X > t]$

b) Find $E[X \mid X < t]$ by using the following:

$$E[X] = E[X \mid X < t]\,P(X < t) + E[X \mid X > t]\,P(X > t)$$