this high given a normal genotype? What is the probability of a level no hig than this given the patient has FH? Do you think the patient has FH? Disc (Consider FH is a rare disease.)

27. The 17-year cicada, *Magicicada septendecim*, is a very unusual Homopteran ins that spends around 17 years as a subterranean nymph. It then emerges (m recently in 2004) as a winged, breeding adult and mates. The females then l their eggs on twigs of deciduous trees. The development time is not uniform for t members of any brood, but, in fact, has the following probability density functio

x (years)	14	15	16	17	18
$f(x)$	.05	.05	.20	.50	.20

(*a*) Construct the cumulative distribution function, $F(x)$, for $f(x)$.

(*b*) Find $F(17)$.

(*c*) Find $P(X < 17)$.

(*d*) Find the expected value for X, $E(X)$.

(*e*) Find the mean development time.

(*f*) Find the variance of development time. Hint: $E(X^2) = 281.55$.

28. In New York State turbidity levels (a measure of the cloudiness of water) are measured in nephelometric turbidity units (NTU) using a nephelometer to estimate the light scattering from suspended particulate material. For high quality water, regulations require that 95% of the turbidity samples collected have measurements below 0.5 NTU. If for a particular water source the measurements are normally distributed with a mean of 0.4 NTU and a standard deviation of 0.15 NTU, does this water source meet the turbidity criterion for high quality water?