

STA102 Spring 2002
Chapter 7 Solutions to Suggested Even Problems

2,4,6 not shown

8.

- a) not shown
- b) $P(x=3) = 0.031$
- c) $P(X \geq 1) = 0.329$; $P(X \geq 4) = 0.016$
- d) $P(X=3|X \geq 1) = 0.094$

10.

- a) $7! = 5040$
- b) $7!/(4!(7-4)!) = 35$
- c) $P(X=2) = 0.168$
- d) $P(X=4) = 0.006$

12.

- a) $np = 7.0$; $sd = 1.7$
- b) $P(X \geq 10) = 0.064$

14.

- a) $P(X=1) = 0.050$
- b) $P(X \leq 2) = 0.174$
- c) $P(X \geq 4) = 0.657$
- d) mean number of cases of tetanus is $\lambda = 4.5$; $sd = 2.1$

16.

- a) $\lambda = np = 17$
- b) $P(X \leq 5) = 0.00067$
- c) $P(15 \leq X \leq 20) = 0.525$

18.

- a) $P(X < 60) = 0.071$
- b) $P(X > 90) = 0.131$
- c) $P(60 \leq X \leq 90) = 0.798$

20.

- a) $P(X \geq 260) = 0.378$
 - b) $P(X \geq 260) = 0.159$
 - c) $P(X < 260) = 0.622$
 - d) If the cutoff point is lowered to 250 mg/100 ml, the probability of a false positive result would increase while the probability of a false negative would decrease.
 - e) Initial serum cholesterol level is not very useful for predicting coronary heart disease in this population.
- Because the normal curves for men who develop disease and those who do not have a

great deal of overlap, the probabilities of false positive and false positive outcomes are both very high.