**Fall 2010 STAT 511 Solution to Midterm Exam**

1. 0.80
2. 216
3. 0.10
4. 13
5. 6
6. 32
7. 3.2
8. unbiased
9. d
10. d
11. b
12. c
13. a
14. b
15. h
16. **ANSWER**
17. P(at least one F among 1st 3) = 1 – P(no F’s among 1st 3)

=1 - 

An alternative method to calculate P(no F’s among 1st 3) would be to choose none of the females and 3 of the 4 males, as follows:

 = obviously producing the same result.

b. P(all F’s among 1st 5) =  = 

1. **ANSWER to the gas problem**

  







Therefore,







1. *P* = .21
2. *P*(*B*) = 
3. P(





1. **ANSWER:**

a. 

b. = .40 +.15+0.0 +.25 +.20 = 1.0

c. 

d.

1. **ANSWER to the binomial problem**

Let *S* represent a telephone that is submitted for service while under warranty and must be replaced. Then *p* = *P*(*S*) = *P*(replaced | submitted)*P*(submitted) = (.40)(.25) = .10. Thus, *X*, the number among the company’s 10 phones that must be replaced, has a binomial distribution with



1. **ANSWER to Time headway**

a. 



1. 
2. 





1. **ANSWER:**

a. 

b. The marginal pdf of *X* is 



1. **ANSWER fertilizer**





