MAT 458 HOMEWORK #3 (Take-home quiz 3) Due on 04/10/20

1. Do text problem 4.26.

2. Do text problem4.28.

3. Suppose we have a=5 treatments (one factor) and blocks of size 3 (k=3). The symbols BIB are Balanced Incomplete Block, r is the number of replicates, b is the number of blocks and λ is the number of blocks where each pair of treatments appears.

   i. For r=2, does there possibly exists BIB design? If yes, what are the values of b and λ?
   ii. For r=3, does there possibly exists BIB design? If yes, what are the values of b and λ?
   iii. For r=4, does there possibly exists BIB design? If yes, what are the values of b and λ?
   iv. For λ =2, does there possibly exists BIB design? If yes, what are the values of b and r?
   v. For λ =3, does there possibly exists BIB design? If yes, what are the values of b and r?
   vi. For λ =4, does there possibly exists BIB design? If yes, what are the values of b and r?

4. Refer to text problem 4.45, but answer the questions below.
   i. Give the values of a, k, b, r and λ .
   ii. Is there a significant effect of additive on mileage? (5% level)