

Due Tuesday, Oct 2

Solve the following problems and staple your solutions to this cover sheet.

1. Exercise 2.102
2. Exercise 2.107
3. Exercise 2.114
4. Exercise 3.2
5. Exercise 3.4
6. Exercise 3.10
7. Exercise 3.18
8. A drawer contains four black, six brown and eight olive socks. Two socks are selected at random. What is the probability that both socks are the same color? What is the probability that both socks are olive if it is known that they are the same color?
9. Let  $Y$  be a discrete random variable. Prove that

$$E(aY + b) = aE(Y) + b \text{ and } V(aY + b) = a^2 V(y)$$

where  $a$  and  $b$  are constants.

10. A single die is cast. If one or two turns up, the random variable  $Y$  is the number showing. If the number is different from one or two, then two fair coins are flipped and random variable  $Y$  is the number of the heads observed. Find the probability function of  $Y$ .