

Math 186, Winter 2009, Prof. Tesler
Homework #4, Due Monday February 2, 2009

Larsen & Marx **Fourth Edition:**

3.4# 3, 5, 10, 11, 14, 15

3.5# 4, 8(c,d), 18, 27, 29, 30

3.6# 2, 5, 14, 15

~~3.7# 1, 7~~ — **Postponed to homework 5**

and the problems below: H-7, H-8.

Problem H-7. 40 independent offspring are produced from an $Rr \times Rr$ cross of pea plants. R =round peas, r =wrinkled, with R dominant.

- (a) Compute the expected number of offspring with wrinkled peas.
- (b) Compute the variance and the standard deviation of the quantity in (a).
- (c) Compute the probability that the the number of offspring with wrinkled peas is exactly the expected number computed in (a).
- (d) Redo (a) and (c) for the case when there are 50 independent offspring instead of 40.

Problem H-8. Rods coming off an assembly line have length L , which is a continuous random variable between 5 and 10 feet, where the probability density is proportional to the length. *There should not be any unknown constants in your final answers to any part of this question, e.g., constants left as "c" or another name; any constants you compute need to be plugged in.*

- (a) Determine the formulas for the pdf and cdf of L . Be sure to account for all real numbers.
- (b) Graph the pdf and cdf.
- (c) Determine the 30th percentile and the median of L .
- (d) Compute the expected value and the standard deviation of L .