Section 5.3 Example Questions

The exponential probability plot above is for miles until first failure of military vehicles.
(a) Estimate the threshold value for these mileages.
(b) Estimate the mean number of miles travelled after the threshold mileage.
(c) Estimate the mean number of miles travelled from the time the vehicle is put into service.
(2) Below is a Weibull plot for voltages.

(a) Do these data appear to be modeled well by a Weibull distribution? How do you know?
(b) Give estimates of $\alpha$ and $\beta$ for the corresponding Weibull distribution.
(c) Estimate the probability that a random voltage is less than 35.
(3) Below are normal plots for lifetimes of springs under 2 levels of stress.

(a) In what ways do these two sets of data approximately follow or not follow normal distributions with similar variances?

(b) Estimate the means and standard deviations under each stress level.
Below are normal plots for diameters observed in a bright field TEM micrograph of a Zircaloy-4 specimen, one for the diameters and the other for log(diameter). In which scale are the the values more normally distributed, the original scale or the log scale. How did you decide?