Chapter 4 Summary

(1) Statistical Inference, Point Estimation
(2) Hypothesis testing – Statistical hypotheses, Type I and II errors. general procedure
(3) Inference on the mean, variance known. Z-test, P-value approach, confidence interval estimation
(4) Inference on the mean, variance unknown. T-test, confidence interval
(5) Inference on the variance – X^2 test

Chapter 5 Outline

(1) Inference on the means, variance known, Z-test, Confidence Intervals
(2) some more...

Inference on the means. Example: A product developer is interested in reducing the drying time of a primer paint. Two formulations of the paint are tested; formulation 1 is the standard chemistry, and formulation 2 has a new drying time. From experience, it is known that the s.d. of drying time is 8 minutes, and it is unaffected vy the addition of the new ingredient.

20 specimens are painted in random order: 10 with formulation 1, and another 10 with formulation 2. The two sample mean drying times are $\overline{x}_1 = 121$ and $\overline{x}_2 = 112$ minutes. Is the new ingredient effective (use $\alpha = 0.05$)?