

# MATH 107/CCE

## Practice Problems 4 Spring 2003

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1. IQ scores for a group of sixth graders are normally distributed with a mean of 100 and a standard deviation of 12.

(a) What is the probability that a randomly selected student will have an IQ score between 102 and 121 ?

(b) What is the probability that a randomly selected student will have an IQ score above 108 ?

(c) What score is needed to be in the top 10% ?

2. The diameter of an electric cable is normally distributed with mean 0.8 in. and standard deviation 0.04 in.

(a) What is the probability the diameter will be between 0.7 and 0.85 in. ?

(b) What is the probability the diameter will exceed 0.83 in. ?

(c) The cable is considered defective if the diameter differs from the mean by more than 0.06 in. What is the probability that a randomly selected cable is defective ?

3. Fifty two percent of a poll of a random sample of 900 people support a town's plan for improving the high school education.

(a) Find a 95% confidence interval for the proportion of residents who are in favor of the plan.

(b) Find a 98% confidence interval for the proportion of residents who are in favor of the plan.

4. Sixty four percent of a poll of a random sample of 400 people support a town's plan for cutting the tax.

(a) Find a 90% and 95% confidence interval for the proportion of residents who are in favor of the plan.

(b) How large a sample should be used if a 96% confidence interval is used with the maximum margin error of 4% ?