


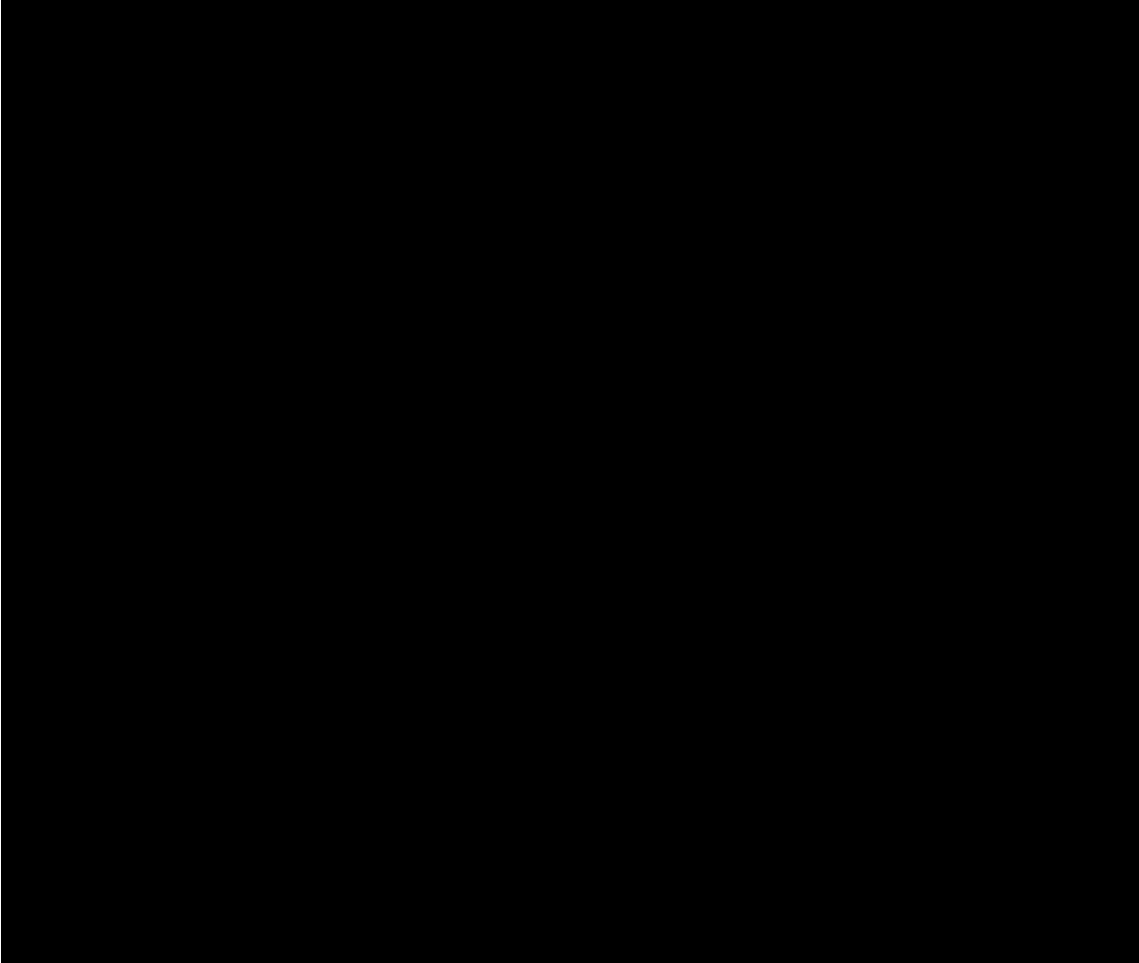


Chapter Review

Read each situation. Then answer each question or do what is asked.

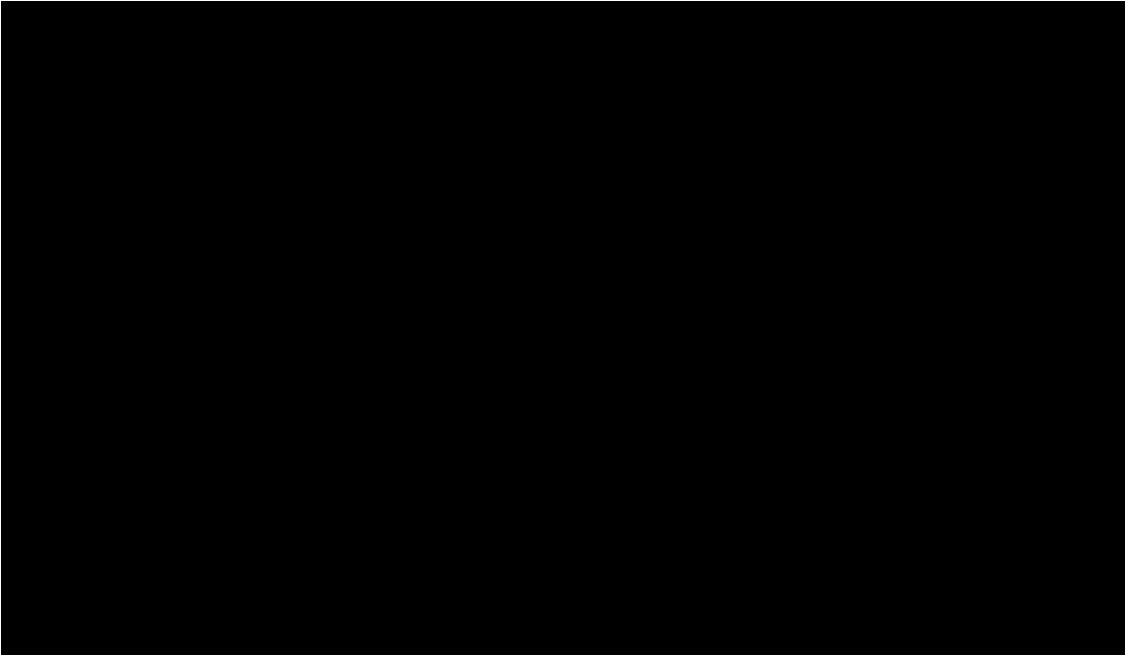
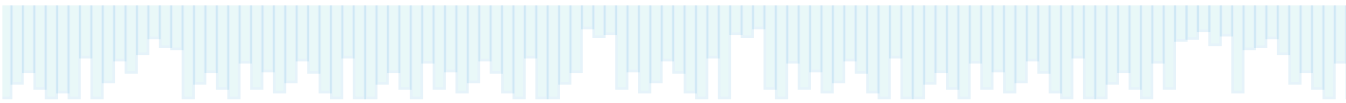
In a random sample of 200 high school students, it was found that 120 have savings accounts in banks.

1. What is the point estimator for the true proportion of high school students who have savings accounts in banks?
 2. What is the best point estimate for the true proportion of high school students who have savings accounts in banks?
 3. What is the standard error of this point estimate?
 4. What is the maximum error?
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Overfilling or underfilling in a production line is a serious problem and requires the operator to shut down the operation and readjust the filling mechanism. Suppose that a production line operates with a mean filling of 12 oz. per container. From previous operations, the acceptable standard deviation is at most 0.8 oz. A quality control inspector selects a sample of 25 items per hour and decides whether to shut down the operation for readjustment. From the most recent sample, he got a mean of 15.82 oz. and a standard deviation of 0.9 oz.

12. What is the best point estimate for the true variability of this production line?
13. Construct a 95% confidence interval for the true standard deviation of this production line.
14. Construct a 95% confidence interval for the true variance of this production line.
15. Will the quality control supervisor recommend shutting down the production line? Why or why not?



A random sample of 15 households in a city provided the following data on the number of kilowatt-hours (kWh) of electricity they consumed in a month:

618, 615, 520, 522, 614, 478, 568, 623, 558, 485, 592, 618, 575, 630, 468.

Assume that the monthly electricity consumptions are normally distributed.

19. Find a point estimate of the true average monthly electricity consumption of households in this city.
 20. Construct a 99% confidence interval for the true average monthly electricity consumption of households in this city and interpret.
 21. Based on the constructed confidence interval, can you conclude that the average monthly electricity consumption of this city is significantly different from the 650 kWh average monthly electricity consumption of the Philippines? Explain your answer.
 22. Find an unbiased point estimate of the true variance of the electricity consumptions of households in this city.
 23. Find an unbiased point estimate of the true standard deviation of the electricity consumptions of households in this city.
 24. Construct a 99% confidence interval for the true variance of the monthly electricity consumptions of households in this city and interpret.
 25. Construct a 99% confidence interval for the true standard deviation of the monthly electricity consumptions of households in this city and interpret.
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