

East Los Angeles College
Department of Mathematics
Math 227
Final Exam

The following data represents the math lab time (hours) that students spent the week before a final exam.

6, 5, 8, 6, 4, 6

1. Determine the mean. **Tenths**
2. Determine the variance. **Tenths**
3. Determine the standard deviation. **Tenths**
4. Use the 90% confidence level to estimate the margin of error associated with estimating the true mean. **Hundredths**
5. Use the 90% confidence interval to estimate the true mean study time. **Tenths**
6. Use the 90% confidence level to estimate the true variance. **Tenths**
7. Use the 90% confidence level to estimate the true standard deviation. **Tenths**

8. A \$ 35,000 life insurance policy for a 28-year old male costs \$ 1,500 per year. If the probability of a 28-year old male living to see 29 years of age is 0.96, compute the expected value for the insurance policy. **Hundredths**

Multiple Choice Quiz

There are 8 questions on a multiple-choice quiz in which each question has 4 possible answers (a), (b), (c), (d). If a person guesses on each question, what's the probability of guessing correct on: **Thousandths**

9. All the questions?
10. One question?
11. Two questions?
12. At least one question?
13. No more than two questions?
14. What is the expected number of correct guesses?

Murder Rate in Springfield

Springfield experiences a mean of 5.2 murders in a 30 day interval. In the next 30 days, what is the probability that Springfield experiences"

15. No murders?
16. One murder?
17. Two murders?
18. At least one murder?
19. more than two murders?
20. No more than three murders?

The lifespan of a laptop is normally distributed with a mean of 6.5 years and a standard deviation of 1.6 years. What percent of laptops last:

21. At least 5 years? **Hundredths**
22. Less than 8 years? **Hundredths**
23. Between 6 and 9 years? **Hundredths**
24. More than 5 years? **Hundredths**
25. What lifespan represents the top 5%? **Tenths**

When reviewing health records, a sample of size 280 indicates that 46% of Americans over the age of 45 suffer from type II diabetes. Use the 95% confidence level to:

26. Estimate the margin of error. **Thousandths**
27. Estimate the true proportion. **Thousandths**
28. If you are conducting a new study using the 95% confidence level and no prior sample proportion information is known, estimate the sample size needed to be within a margin of error of $\pm 3\%$

US Senators The following table displays 100 senators of the 112th US congress viewed by political party affiliation and gender.

	Male	Female	Total
Democrat	42	12	54
Republican	36	6	42
Independent	0	4	4
Total	78	22	100

If a person is selected at random, what's the probability the person:

29. is a democrat? **Thousandths**
30. is a republican? **Thousandths**
31. is a non-republican? **Thousandths**
32. democrat or a republican? **Thousandths**
33. Is a republican given that the person is a male? **Thousandths**
34. is a republican given that the person is a female? **Thousandths**

Left Handedness

The proportion of men who are left handed is 12% A sample of 62 men reveal that 12 are left handed Use the 5% level of significance answer the following questions.

35. What is the claim?
36. What are your critical value(s)?
37. What is your test statistic?
38. What is your conclusion?

Car and Taxi Ages

The mean age of cars is no more than 12 years. A sample of 80 cars reveal a mean age of 10.2 years with a standard deviation of 2.6 years. Use the 10% level of significance to answer the following questions.

39. What is the claim?
40. What are your critical value(s)?
41. What is your test statistic?
42. What is your conclusion?

Answer Sheet

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