

3 SAMPLE EXAMS

3.1 SAMPLE EXAMINATION 1

This sample examination covers the material of Chapters 1 to 3 and illustrates the types of questions that can be asked. It is too long for a normal class period.

PART I-MULTIPLE CHOICE-3 POINTS EACH

1. The heights of American men aged 18 to 24 are approximately normally distributed with mean 68 inches and standard deviation 2.5 inches. Half of all young men are shorter than
2. Use the information in the previous problem. Only about 5% of young men have heights outside the range
3. Use the information in Problem 1. What percent of young men are taller than 6 feet?
4. A study found correlation $r = .61$ between the sex of a worker and his or her income. You conclude that

5. The scores on a statistics exam are strongly skewed to the left. So it is best to describe the distribution by reporting

6. The grade point averages (GPA) of 7 randomly chosen students from your statistics class are

3.14 2.37 2.94 3.60 1.70 4.00 1.85

The mean GPA for these students is

7. Refer to the information given in the previous problem. If $\sum(x - \bar{x})^2 = 4.51$, then the standard deviation is

8. You record the age, marital status, and earned income of a sample of 1463 women. The number of variables you have recorded is

9. A copy machine dealer has data on the number x of copy machines at each of 89 customer locations and the number y of service calls in a month

3.1 SAMPLE EXAMINATION 1

43

at each location. Summary calculations give $\bar{x} = 8.4$, $s_x = 2.1$, $\bar{y} = 14.2$, $s_y = 3.8$, and $r = .86$. What is the slope of the least squares regression line of number of service calls on number of copiers?

10. In the setting of the previous problem, about what percent of the variation in number of service calls is explained by the linear relation between number of service calls and number of machines?

11. A machine is designed to fill 16 ounce bottles of shampoo. When the machine is in control, the the mean amount poured into the bottles is 16.05 ounces with a standard deviation of .05 ounces. To make a control chart for this machine you would put the control limits at

12. A standardized test designed to measure math anxiety has a mean of 100 and a standard deviation of 10 in the population of first year college students. Which of the following observations would you suspect is an outlier?

13. Erin is a runner who keeps accurate records of her training. In one season she averaged 3.4 miles per day with a standard deviation of .5 miles. What is her standard deviation expressed in kilometers? (1 mile = 1.6 kilometers)

14. In a statistics course a linear regression equation was computed to predict the final exam score from the score on the first test. The equation was $\hat{y} = 10 + .9x$ where y is the final exam score and x is the score on the first exam. Eve scored 95 on the first test. What is the predicted value of her score on the final exam?

15. Refer to the previous problem. On the final exam Eve scored 98. What is the value of her residual.