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| 1 | Prepare Excel file and find Mean, Mode, median of following data using R and Text Solution |
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| 3 | Following exercise solve using R   1. A basketball player makes 60% of his free throws. If he takes 12 free throws, what is the probability of making exactly 10? 2. Assume exam scores are normally distributed with a mean of 75 and a standard deviation of 10. What is the probability of a student scoring 90 or higher? 3. Given that it is raining (A), the probability of heavy traffic (B) is 0.2. The probability of rain is 0.3 and the probability of traffic is 0.6. What is the probability of rain given there is heavy traffic? (P(A|B)) 4. Simulate flipping a fair coin 1000 times and calculate the proportion of heads. |
| 4 | Following exercise solve using R   1. The numbers below are the first ten days of rainfall amounts in 1996. Read them into a vector using the c() function.   0.1 0.6 33.8 1.9 9.6 4.3 33.7 0.3 0.0 0.1  answer the following questions   1. What was the mean rainfall, how about the standard deviation? 2. Calculate the cumulative rainfall (’running total’) over these ten days. Confirm that the last value of the vector that this produces is equal to the total sum of the rainfall. 3. Which day saw the highest rainfall |
| 5 | Working with two vectors  You have measured five cylinders, their lengths are: 2.1, 3.4, 2.5, 2.7, 2.9 and the diameters are : 0.3, 0.5, 0.6, 0.9, 1.1  Read these data into two vectors   1. Calculate the correlation between lengths and diameters 2. Calculate the volume of each cylinder (V = length \* pi \* (diameter / 2) 2 ). 3. Calculate the mean, standard deviation, and coefficient of variation of the volumes. 4. Assume your measurements are in centimetres. Recalculate the volumes so that their units are in cubic millimetres. Calculate the mean, standard deviation, and coefficient of variation of these new volumes. |

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| 6 | 1. For a normal random variable X with mean 5.0, and standard deviation 2.0, find the probability that X is less than 3.0. 2. Find the probability that X is greater than 4.5 3. Find the value K so that P(X > K) = 0.05 4. When tossing a fair coin 10 times, find the probability of seeing no heads (Hint: this is a binomial distribution.) 5. Find the probability of seeing exactly 5 heads 6. Find the probability of seeing more than 7 heads |
| 7 | 1. Simulate a sample of 100 random data points from a normal distribution with mean 100 and standard deviation 5, and store the result in a vector. 2. Plot a histogram and a boxplot of the vector you just created 3. Calculate the sample mean and standard deviation 4. Calculate the median and interquartile range 5. Using the data above, test the hypothesis that the mean equals 100 (using t.test). 6. Test the hypothesis that mean equals 90 7. Repeat the above two tests using a Wilcoxon signed rank test. Compare the p-values with those from the t-tests you just did. |
| 8 | 1. Create the following data frame , afterword invert gender for all individual |
| 9 | 1. Write a R program to convert given dataframe column(s) to a vector.   dfc1 dfc2 dfc3 dfc4  1 1 6 11 16  2 2 7 12 17  3 3 8 13 18  4 4 9 14 19  5 5 10 15 20 Write a program to list the distinct values in a vector from a given vector. 10, 10, 10, 20, 30, 40, 40, 40, 50 Write a program to find the elements of a given vector that are not in another given vector. a = c(0, 10, 10, 10, 20, 30, 40, 40, 40, 50, 60)  b = c(10, 10, 20, 30, 40, 40, 50) |
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| 13 | In a sample of 16 observations from a normal distribution with mean150 and standard deviation 16 ,  1.What is P(xbar less than eq .to 160)=? P(xbar<=162)- lower.tail=T  2.What is P(xbar > 142)=?  Find commands and output for following exercises:  1. A bottling company uses a filling machine to fill plastic bottles with a popular cola. The bottles  are supposed to contain 300 ml. In fact, the contents vary according to a normal distribution with a  mean (mu) = 298 ml and standard deviation( sigma) = 3 ml. What is the probability that the  average contents of 6 randomly selected bottles is < 295?  2. Consider Mean = 8000 and standard deviation is = 3200 , n=64 , what is P( xbar> 9000) and  P(xbar<=8500)  3. In a sample of observations from a normal distribution with mean18 and standard deviation 4.8 ,  i. What is P(xbar less than or equal to 16)  ii. What is P(xbar > 16)  iii. What is P(xbar <= 20) |
| 14 | **Exercise1**: HITAVADA press hypothesizes that aveage life of its largest web press in 14500 hours. They know standard deviation of press life is 2100 hours. From a sample of 25 presses , the company finds a sample mean of 13000 hours. At a 0.01 significance level should the company conclude that average life of presses is less than hypothesized 14500 hours .  **Exercise** 2: Given a sample mean of 83, a sample standard deviation of 12.5 , and a sample size of 22,test the hypothesis that the value of the poulation mean is 70 against the alternative that it is more than 70. use the 0.025 significance level.  **Exercise** 3: Given a sample mean of 94.3, a sample standard deviation of 8.4, and a sample size of 6,test the hypothesis that the value of the poulation mean is 100 against the alternative that it is less than 100. use the 0.05 significance level. |