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Histogram example problems pdf answers key test questions

Calculate the width of each bar/bin size/interval size. Create a histogram and clearly label the endpoints of the intervals. We could find the mean or the median temperature for the month. If f = frequency, n = total number of data values (or the sum of the individual frequencies), and RF = relative frequency, then For example, if three students in Mr. Ahab's English class of 40 students received from ninety to 100 percent, then f = 3, n = 40, and RF = fnfn = 340340 = 0.075. Use the TRACE key and the arrow keys to examine the histogram. The graph will have the same shape with either label. Note that these values represent the numbers of books. Press second Y=. Using this data, create a histogram. Use six bars on the histogram. Rounding to the next number is often necessary even if it goes against the standard rules of rounding. So, six divided by six bins gives a bin size (or interval size) of one. By using the axes in that way, we make each point on the graph correspond to a date and a measured quantity. Press STAT 1:EDIT. The vertical axis is labeled either frequency or relative frequency or probability). After choosing the appropriate intervals, begin plotting the data points. Every day at noon, we note the temperature and write this down in a log. Frequency Distribution for Calculus Final Test Scores Lower BoundUpper Bound Frequency Cumulative Frequency 49.5 59.555 59.569.5101569.579.5 304579.589.54085 89.599.515100 Notice that each point represents frequency for a particular interval. Construct a time series graph for the Annual Consumer Price Index data only. Press 1:Plot1. The heights 72 through 73.5 are in the interval 71.95-73.95. For most of the work you do in this book, you will use a histogram to display the data. The shape of the data refers to the shape of the data set, and the spread indicates how far the values are dispersed about the center. The horizontal axis is used to plot the data or time increments, and the vertical axis is used to plot the values of the variable that we are measuring. Start by pressing 4:Plotsoff ENTER. The same idea applies to the last interval of 99.5-109.5, which has a midpoint of 104.5 and correctly shows a point representing a frequency of 0. Create the histogram for Example 2.10.Press Y=. However, once the same data points are displayed graphically, some features jump out. We start with a standard Cartesian coordinate system. For example, if there are 150 values of data, take the square root of 150 and round to 12 bars or intervals. Eight student athletes play three sports. Time series graphs make trends easy to spot. A histogram consists of contiguous (adjoining) boxes. The x-axis will show the lower and upper bound for each interval, containing the data values, whereas the y-axis will represent the frequency is equal to the frequency for an observed value of the data divided by the total number of data values in the sample. Thus, 7.5 percent of the students received 90 to 100 percent. Two students buy six books. There is more than one correct way to set up a histogram. For example, if an interval has three data values in it, the frequency polygon will show a 3 at the upper endpoint of that interval. Go to Appendix G. Then, consecutive points are connected with a line. Use the table to construct a time series graph for CO2 emissions for the United States. CO2 Emissions for the United States 2003 352,259 540,640 5,681,664 2004 343,121 540,409 5,790,761 2005 339,029 541,990 5,826,394 2006 327,797 542,045 5,737,615 2007 328,357 528,631 5,828,697 2008 323,657 522,247 5,656,839 2009 272,176 474,579 5,299,563 Time series graphs are important tools in various applications of statistics. The heights that are 64 through 64.5 are in the interval 63.95-65.95. Notice that we may choose different rational numbers to add to, or subtract from, our maximum and minimum values when calculating bin size. Since each date is paired with the temperature reading for the day, we don't have to think of the data as being random. For the interval occurring before 49.5-59.5, (as well as 39.5-49.5), the value of the midpoint, or 44.5, is represented by a point, showing a frequency of 0, since we do not have any values in that range. This comparison is achieved by overlaying the frequency polygons drawn for different data sets. To construct a time series graph, we must look at both pieces of our paired data set. 60, 60.5, 64.5, InaugurationFrequency 41.5-46.54 46.5-51.511 51.5-56.514 56.5-61.59 61.5-66.54 66.5-71.52 Frequency polygons are useful for comparing distributions. The heights 68 through 69.5 are in the interval 67.95-69.95. A guideline that is followed by some the number of bars or bar width/bin size; however, consistency is key when determining which data values to place inside each interval. One advantage of a histogram is that it can readily display large data sets. 9, 9, 9.5, 9.5, 10, 10, 10, 10, 10, 10, 10, 10, 10.5, 10. 11.5, 11.5, 11.5, 11.5, 11.5, 11.5, 12.5, 22.9 18.8 20.5 Some values in this data set fall on boundaries for the class intervals. The points on the graph are typically connected by straight lines in the order in which they occur. The following data are the number of sports played by 50 student athletes. A frequency polygon was constructed from the frequency table below YearJanFebMarAprMayJunJul 2003 181.7183.1184.2183.8 183.5183.7183.9 2004 185.2186.2187.4188.0 189.1189.7189.4 2005 190.7191.8193.3194.6 194.4194.5195.4 2006 198.3198.7199.8201.5 202.5202.9203.5 206.686207.949208.352 208.299 2008 211.080211.693213.528 214.823216.632218.815 219.964 2009 $211.143212.193212.709\ 213.240213.856215.693\ 215.351\ 2010\ 216.687216.741217.631\ 218.009218.178217.965\ 218.011\ 2011\ 220.223221.309223.467\ 224.906225.964225.722\ 225.922\ 2012\ 226.665227.663229.392\ 230.085229.815229.478\ 229.104\ Year\ AugSepOctNovDecAnnual\ 2003\ 184.6\ 185.2185.0184.5184.3\ 184.0\ 2004\ 189.5$ $189.9190.9191.0190.3\ 188.9\ 2005\ 196.4\ 198.8199.2197.6196.8\ 195.3\ 2006\ 203.9\ 202.9201.8201.5201.8\ 2011.5201.8\ 2011.8201.5201.8\ 2011.8201.5201.8\ 2011.8\ 2$ 226.545226.889 226.421226.230225.672 224.939 2012 230.379231.407 231.317230.221229.601 229.594 Figure 2.10 The annual amounts are plotted for each year. Set Xmin = .5, Xscl = (6.5 - .5)/6, Ymin = -1, Ymax = 20, Yscl = 1, Xres = 1. Ninety to 100 percent is a quantitative measures. To construct a histogram, first decide how many bars or intervals, also called classes, represent the data. These points are located halfway between the lower bound and upper bound. A graph that recognizes this ordering and displays the changing temperature as the month progresses is called a time series graph. If L1 has data in it, arrow up into the name L1, press CLEAR and then arrow down. The following data show the Annual Consumer Price Index each month for 10 years. Into L2, enter 11, 10, 16, 6, 5, 2. Press WINDOW. Arrow down to TYPE. Your instructor will record the amounts. 22, 35, 15, 26, 40, 28, 18, 20, 25, 34, 40, 20, 38, 28 Count the money (bills and change) in your pocket or purse. We will construct an overlay frequency polygon comparing the scores from Example 2.12 with the students' final numeric grades. The window settings are chosen to accurately and completely show the data value range and the frequency range. Arrow down to Xlist: Enter L1 (2nd 1). Sixteen students buy three books. Remember, frequency is defined as the number of times an answer occurs. If necessary, do the same for L2. The number of sports are counted. Using this data set, construct a histogram. The sizes are continuous data since shoe size is measured. Frequency Distribution for Calculus Final Test Scores Lower BoundUpper Bound Frequency Cumulative Frequency 49.559.55 5 59.569.510 15 69.579.530 45 79.589.540 85 89.599.515 100 Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound Upper Bound Upper Bound Upper Bound Upper Bound Frequency Distribution for Calculus Final Grades Lower Bound Upper Bound sometimes difficult for him or her to discern any trend or pattern. Looking at the graph, we say that this distribution is skewed because one side of the graph does not mirror the other side. Each data point represents the frequency polygon of U.S. presidents' ages at inauguration shown in Table 2.18. Note that these numbers of books. Press CLEAR to delete any equations. You may want to experiment with the number of intervals. Enter L2 (second 2). Interval Frequency 89.95-61.95 5 5/100 = 0.05 61.95-63.95 3 3/100 = 0.03 $63.95-65.95\ 15\ 15/100 = 0.15\ 65.95-67.95\ 40\ 40/100 = 0.15\ 65.95-67.95\ 40\ 40/100 = 0.40\ 67.95-69.95\ 17\ 17/100 = 0.17\ 69.95-71.95\ 12\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71.95\ 12/100 = 0.17\ 69.95-71$ the data and decide on the number of intervals and resulting interval size, for both the x-axis and y-axis. The following data are the heights (in inches to the nearest half inch) of 100 male semiprofessional soccer players. The following data are the heights (in inches to the nearest half inch) of 100 male semiprofessional soccer players. prevent a value from falling on a boundary. Arrow to the third picture (histogram). After all the points are plotted, draw line segments to connect them. It has both a horizontal axis and a vertical axis. The horizontal axis is more or less a number line, labeled with what the data represents, for example, distance from your home to school. In the previous example, we added and subtracted .05, while this time, we added and subtracted .5. Calculate a desired bin size for the data that we have collected. One feature of the data that we may want to consider is that of time. The boundaries are as follows: 59.95 59.95 $+2 = 61.95 \ 61.95 + 2 = 63.95 \ 63.95 + 2 = 63.95 \ 63.95 + 2 = 65.95 \ 65.95 + 2 = 67.95 \ 67.95 + 2 =$ Press ENTER. As a class, construct a histogram displaying the data. The number of books is discrete data since books are counted. The heights 66 through 67.5 are in the interval 65.95-67.95. A variety of statistical studies could be done with these data. We have a small range here of 14.1 (74.05 - 59.95), so we will want a fewer number of bins: let's say eight. Frequency polygons are analogous to line graphs, and just as line graphs, and just as line graphs make continuous data visually easy to interpret, so too do frequency polygons. A value is counted in a class interval if it falls on the left boundary but not if it falls on the right boundary. The smallest data value is 1, and the largest data value is 6. Press GRAPH. The heights that are 63.5 are in the interval 61.95-63.95. In fact, the horizontal axis, or x-axis, shows only these midpoint values. We could construct a histogram displaying the number of days that temperatures reach a certain range of values. Six students buy four books. For the interval 49.5-59.5 the value 54.5 is represented by a point, showing the correct frequency of 5. Different researchers may set up histograms for the same data in different ways. To make sure each is included in an interval, we can use 59.95 as the smallest value and 74.05 as the largest value, subtracting and adding .05 to these values, respectively. Construct a histogram and calculate the width of each bar or class interval. The width of each bar is also referred to as the bin size, which may be calculated by dividing the range of the data values by the desired number of bins (or bars). For this example, using 1.76 as the width would also work. To make sure each is included in an interval, we can use 0.5 as the smallest value and 6.5 as the largest value by subtracting and adding 0.5 to these values. The histogram (like the stemplot) can give you the shape of the data, the center, and the spread of the data. Five students buy five books. We will round up to two and make each bar or class interval two units wide. Given a data set, you will be able to determine what is appropriate and reasonable. The following histogram displays the heights on the x-axis and relative frequency on the y-axis. axis. So, 14.1 divided by eight bins gives a bin size (or interval size) of approximately 1.76. Twenty-two student athletes play two sports. The heights 70 through 71 are in the interval 69.95-71.95.