

Answer on Question #44231 - Math - Statistics and Probability

2.41 THE VIDEO GAME SATISFACTION RATING CASE

Recall that 65 purchasers have participated in a survey and have rated the XYZ-Box video game system. The composite ratings that have been obtained are as follows:

39 38 40 40 40 46 43 38 44 44 44
 45 42 42 47 46 45 41 43 46 44 42
 38 46 45 44 41 45 40 36 48 44 47
 42 44 44 43 43 46 43 44 44 46 43
 42 40 42 45 39 43 44 44 41 39 45
 41 39 46 45 43 47 41 45 45 41

a. Construct a stem-and-leaf display for the 65 composite ratings. Hint: Each whole number rating can be written with an “implied tenth place” of zero. For instance, 39 can be written as 39.0. Use the implied zeros as the leaf values and the whole numbers 36, 37, 38, 39, etc. as the stem values.

Answer:

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36 | 0
38 | 0 0 0 0 0 0 0
40 | 0 0 0 0 0 0 0 0 0 0 0
42 | 0 0 0 0 0 0 0 0 0 0 0 0 0
44 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
46 | 0 0 0 0 0 0 0 0 0
48 | 0
    
```

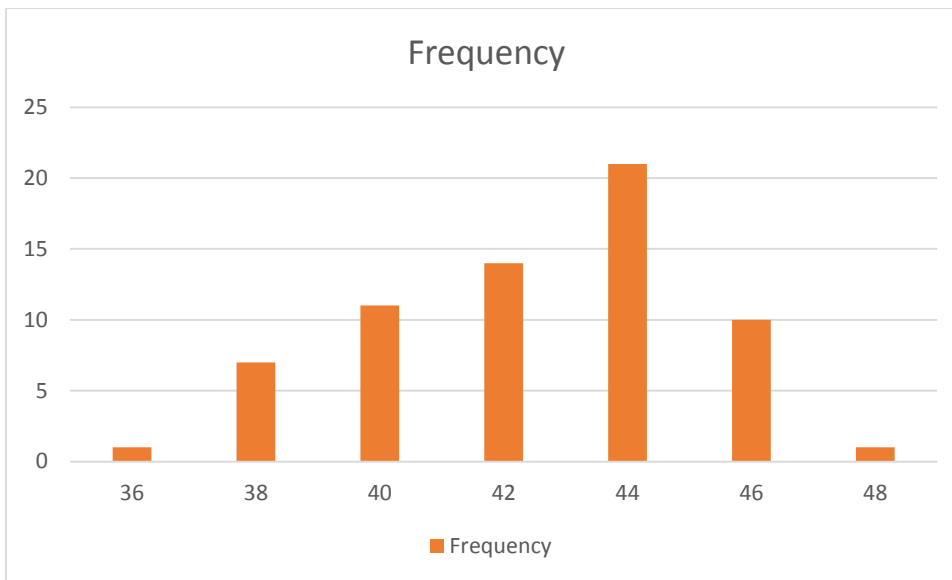
b. Describe the distribution of composite ratings.

Answer:

Distribution of composite ratings

Value	Frequency
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Value	Frequency
36	1
38	7
40	11
42	14
44	21
46	10
48	1



As seen from histogram of frequencies, the distribution of composite ratings is skewed to the right.

The mean is 43.0, the median is 43.0, the mode is 44.0.

The range is 12.0, maximum value is 48.0, minimum value is 36.0.

The 1st quantile is 41.0, the 2nd quantile is 43.0, the 3rd quantile is 45.0, interquartile range is 4.0.

The variance is 7.0, the standard deviation is 2.6.

If divided into 5 classes:

Class	Midpoint	Frequency	Relative frequency	Cumulative frequency
36.0-38.0	37.0	4	0.062	4
39.0-41.0	40.0	15	0.231	19
42.0-44.0	43.0	26	0.4	45
45.0-47.0	46.0	19	0.292	64
48.0-50.0	49.0	1	0.015	65

The class with minimum frequency is 48-50, the class with maximum frequency is 42.0-44.0.

c. If we consider a purchaser to be “very satisfied” if his or her composite score is at least 42, can we say that almost all purchasers of the XYZ-Box video game system are “very satisfied”?

Answer:

We cannot say that almost all purchasers are “very satisfied” because only 46 of 65 (70.8%) composite ratings are more than or equal to 42.