PY 204 Chapter 1 – Measures of Central Tendency and Spread

You want to know how many hours of sleep your dog gets per day, so you put a fitness tracker on him that will track hours of sleep. Here are the daily recordings you get, in hours:

14, 17, 19, 17, 18

For all answers, indicate the *units* the answer is in.

1. Determine *n*
2. Compute the:
   1. Mean
   2. Mode
   3. Median
   4. Range
3. Construct a variance table from these data, using the chart below in order to tell me the
   1. sum of squares (SS)
   2. variance
   3. standard deviation

For the variance and standard deviation, please round to the nearest hundredth (i.e., 2 decimal places).

|  |  |  |  |
| --- | --- | --- | --- |
| **score** | **mean** | **error** | **error2** |
| **x** | **x̄** | **(x - x̄)** | **(x - x̄)2** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1) *n* = 5 recordings/scores

2a) mean = (14 + 17 + 17 + 18 + 19 ) / 5 = 85/5 = 17 hours

2b) mode = 17 hours

2c) middle score = (n+1)/2 = (5+1)/2 = 3. The middle score is the 3rd score. Order the scores 14 17 17 18 19. The 3rd score is 17.

Median = 17 hours

2d) range = largest – smallest = 19 – 14 = 5 hours

3)

|  |  |  |  |
| --- | --- | --- | --- |
| **score** | **mean** | **error** | **error2** |
| **x** | **x̄** | **(x - x̄)** | **(x - x̄)2** |
| 14 | 17 | -3 | 9 |
| 17 | 17 | 0 | 0 |
| 17 | 17 | 0 | 0 |
| 18 | 17 | 1 | 1 |
| 19 | 17 | 2 | 4 |

3a) SS (sum of squared errors) = 9 + 0 + 0 + 1 + 4 = 14 hours-squared

3b) variance (s2) = SS/(n-1) = 14/(5-1) = 14/4 = 3.50 hours

3c) standard deviation (s) = take the square root of 3.50 = 1.87 hours