Lab 6:

Sign test

Test

|  |  |
| --- | --- |
| Null hypothesis | H₀: η = 0 |
| Alternative hypothesis | H₁: η ≠ 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sample | Number < 0 | Number = 0 | Number > 0 | P-Value |
| Difference | 5 | 0 | 11 | 0.210 |

Wilcoxon test

Test

|  |  |
| --- | --- |
| Null hypothesis | H₀: η = 0 |
| Alternative hypothesis | H₁: η ≠ 0 |

|  |  |  |  |
| --- | --- | --- | --- |
| Sample | N for Test | Wilcoxon Statistic | P-Value |
| Difference | 16 | 110.00 | 0.032 |

Box plot

Boxplot of Box, No box



Descriptive Statistics: Box, No box

Statistics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Mean | StDev | Minimum | Q1 | Median | Q3 | Maximum |
| Box | 87.4 | 43.9 | 25.0 | 58.3 | 83.5 | 108.8 | 185.0 |
| No box | 79.3 | 47.7 | 11.0 | 49.3 | 68.5 | 107.5 | 170.0 |

Conclusion:

1. The p-value of sign test (0.454)< significance probability (0.05) we do not reject the null hypothesis that the no. of deodorants sold with and without box Is same
2. The Wilcoxon signed test also confirs that we do not have t oreject the null hypothesis since p value(0.054) < alpha sign (0.05)
3. The box and whisker plot shows that the distribution of no. of deodorant sold with box is symmetrical while the distribution of no. of distribution sold without box is right skewed
4. The descriptive statsitics shows that the average no. of units of deodorant sold with box is slightly higher (87,4) than sold without box(79.9)
5. The variability of no. of ints sold without box (47.7) is slightly higher than the variability of no. of units sol dwith box(43.9).