Stats Practice Quiz – DON’T WRITE ON ME, PLEASE!

1. A student believes that plants will grow taller if Neon Trees (a rock band) is played to them. He sets up 10 plants. Five of them are kept in a quiet room while the other five have the music played to them around the clock. Their height is measured after one month and the results are displayed below. Does the music help with plant growth (α=0.10)? Use ABCDE format. Report the means and standard deviations for both groups.

|  |  |
| --- | --- |
| Height of plants in quiet room (cm) | Height of plants who had Neon Trees played to them (cm) |
| 18.4 | 18.3 |
| 19.2 | 17.3 |
| 18.7 | 18.4 |
| 19.1 | 18.6 |
| 17.5 | 18.9 |

1. As a check of their laboratory protocol for growing mouse embryos in vitro, a group of scientists want to compare the mean mass of 15 embryos grown for two weeks in their lab (see data below) to an average mass value of 75 µg that was obtained in several other published studies that used the same protocol. Is the mass of the mouse embryos grown in this study less than that expected from previously published studies? Use alpha = 0.01. Use ABCDE format.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Embryo mass (µg) | 52 | 57 | 62 | 96 | 88 | 89 | 49 | 50 | 83 | 52 | 99 | 65 | 62 | 75 | 63 |

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| Embryo mass (µg) | 52 | 57 | 62 | 96 | 88 | 89 | 49 | 50 | 83 | 52 | 99 | 65 | 62 | 75 | 63 |

Answers

1. A. 2-sample

B. There is no difference in plant height between the quiet room and the Neon trees room.

C. If p<0.1, reject null 🡪they are different, we must compare means to see which works better

D. p=0.512>α

E. Music does not affect plant height (p=0.512).

|  |  |
| --- | --- |
| Quite room plant height | Neon Trees plant height |
| 18.6(0.7)cm | 18.3(0.6)cm |

1. A. 1-sample

B. There is no difference is embryo mass between the lab and other published studies.

C. If p< 0.01, reject null🡪 they are different, so masses aren’t the same

D. p=0.24> α

E. The masses of the embryo in the lab are the same compared to the previously published studies (p=0.24).

Answers

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B. There is no difference in plant height between the quiet room and the Neon trees room.

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