An instructor gives two exams to the students. She wants to know if the exams are equally difficult and wants to check this by looking at the differences between scores. Assume that the conditions of inferences are met. What is the margin error of the average difference in two exam scores at 90% confidence level? You can use R. Don't submit your R code.

|  |  |  |  |
| --- | --- | --- | --- |
| **Student** | **Exam 1 Score** | **Exam 2 Score** | **Difference** |
| Bob | 63 | 69 | 6 |
| Nina | 65 | 65 | 0 |
| Tim | 56 | 62 | 6 |
| Kate | 100 | 91 | -9 |
| Alonzo | 88 | 78 | -10 |
| Jose | 83 | 87 | 4 |
| Nikhil | 77 | 79 | 2 |
| Julia | 92 | 88 | -4 |
| Tohru | 90 | 85 | -5 |
| Michael | 84 | 92 | 8 |
| Jean | 68 | 69 | 1 |
| Indra | 74 | 81 | 7 |
| Susan | 87 | 84 | -3 |
| Allen | 64 | 75 | 11 |
| Paul | 71 | 84 | 13 |
| Edwina | 88 | 82 | -6 |

Answer:

n=16 df=15 t\*=1.753

s\_diif=7 SE = 1.75

*ME = t\*SE = 1.753\*1.75 =* ***3****.****06775***

*ME = t\*SE = 1.75 \* 1.75 =* ***3****.****0625***

d\_bar = 1.3125 so (-1.755, 4.38)