Name: Heidi Nguyen

T-TEST

**Source Code:**

**data** test;

input score treatment $;

datalines;

5 Extrinsic

5.4 Extrinsic

6.1 Extrinsic

10.9 Extrinsic

11.8 Extrinsic

12 Extrinsic

12.3 Extrinsic

14.8 Extrinsic

15 Extrinsic

16.8 Extrinsic

17.2 Extrinsic

17.2 Extrinsic

17.4 Extrinsic

17.5 Extrinsic

18.5 Extrinsic

18.7 Extrinsic

18.7 Extrinsic

19.2 Extrinsic

19.5 Extrinsic

20.7 Extrinsic

21.2 Extrinsic

22.1 Extrinsic

24 Extrinsic

12 Intrinsic

12 Intrinsic

12.9 Intrinsic

13.6 Intrinsic

16.6 Intrinsic

17.2 Intrinsic

17.5 Intrinsic

18.2 Intrinsic

19.1 Intrinsic

19.3 Intrinsic

19.8 Intrinsic

20.3 Intrinsic

20.5 Intrinsic

20.6 Intrinsic

21.3 Intrinsic

21.6 Intrinsic

22.1 Intrinsic

22.2 Intrinsic

22.6 Intrinsic

23.1 Intrinsic

24 Intrinsic

24.3 Intrinsic

26.7 Intrinsic

29.7 Intrinsic

;

**proc** **print** data=test;

**run**;

**data** test1;

set test;

rand1 = ranuni(**234**);

**run**;

**proc** **print** data=test1;

**run**;

**proc** **sort** data = test1;

by rand1;

**run**;

**proc** **print** data = test1;

**run**;

**data** test2;

set test1;

newgroup = "ex";

if \_N\_ <= **24** then newgroup="in";

**run**;

**proc** **print** data = test2;

**run**;

**proc** **ttest** data = test2;

class newgroup;

var score;

**run**;

**Result:**

**Rand1:**

|  |
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| The SAS System |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Obs** | **score** | **treatment** | **rand1** | **newgroup** |
| **1** | 5.4 | Extrinsi | 0.00076 | in |
| **2** | 20.7 | Extrinsi | 0.00276 | in |
| **3** | 21.6 | Intrinsi | 0.00903 | in |
| **4** | 21.2 | Extrinsi | 0.04735 | in |
| **5** | 12.3 | Extrinsi | 0.05713 | in |
| **6** | 26.7 | Intrinsi | 0.09533 | in |
| **7** | 16.6 | Intrinsi | 0.14533 | in |
| **8** | 12.0 | Intrinsi | 0.21079 | in |
| **9** | 17.5 | Intrinsi | 0.22113 | in |
| **10** | 5.0 | Extrinsi | 0.28124 | in |
| **11** | 17.2 | Intrinsi | 0.32408 | in |
| **12** | 22.1 | Intrinsi | 0.33267 | in |
| **13** | 12.0 | Intrinsi | 0.33470 | in |
| **14** | 19.8 | Intrinsi | 0.41409 | in |
| **15** | 14.8 | Extrinsi | 0.41586 | in |
| **16** | 18.2 | Intrinsi | 0.43661 | in |
| **17** | 19.2 | Extrinsi | 0.44353 | in |
| **18** | 13.6 | Intrinsi | 0.47864 | in |
| **19** | 20.6 | Intrinsi | 0.50393 | in |
| **20** | 18.7 | Extrinsi | 0.54339 | in |
| **21** | 19.1 | Intrinsi | 0.54523 | in |
| **22** | 21.3 | Intrinsi | 0.54843 | in |
| **23** | 20.5 | Intrinsi | 0.55015 | in |
| **24** | 6.1 | Extrinsi | 0.55889 | in |
| **25** | 19.5 | Extrinsi | 0.56298 | ex |
| **26** | 16.8 | Extrinsi | 0.57657 | ex |
| **27** | 17.2 | Extrinsi | 0.58570 | ex |
| **28** | 22.1 | Extrinsi | 0.58674 | ex |
| **29** | 29.7 | Intrinsi | 0.59368 | ex |
| **30** | 15.0 | Extrinsi | 0.65180 | ex |
| **31** | 11.8 | Extrinsi | 0.65500 | ex |
| **32** | 17.4 | Extrinsi | 0.69427 | ex |
| **33** | 10.9 | Extrinsi | 0.69928 | ex |
| **34** | 24.0 | Extrinsi | 0.70166 | ex |
| **35** | 24.0 | Intrinsi | 0.70617 | ex |
| **36** | 24.3 | Intrinsi | 0.71017 | ex |
| **37** | 17.2 | Extrinsi | 0.72055 | ex |
| **38** | 17.5 | Extrinsi | 0.72119 | ex |
| **39** | 12.9 | Intrinsi | 0.72695 | ex |
| **40** | 18.7 | Extrinsi | 0.79116 | ex |
| **41** | 12.0 | Extrinsi | 0.81090 | ex |
| **42** | 22.6 | Intrinsi | 0.83854 | ex |
| **43** | 19.3 | Intrinsi | 0.90398 | ex |
| **44** | 23.1 | Intrinsi | 0.91675 | ex |
| **45** | 18.5 | Extrinsi | 0.94358 | ex |
| **46** | 22.2 | Intrinsi | 0.96711 | ex |
| **47** | 20.3 | Intrinsi | 0.98052 | ex |

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| The SAS System |

The TTEST Procedure

Variable: score

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **N** | **Mean** | **Std Dev** | **Std Err** | **Minimum** | **Maximum** |
| **ex** | 23 | 19.0000 | 4.6727 | 0.9743 | 10.9000 | 29.7000 |
| **in** | 24 | 16.7583 | 5.6052 | 1.1442 | 5.0000 | 26.7000 |
| **Diff (1-2)** |  | 2.2417 | 5.1704 | 1.5087 |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **Method** | **Mean** | **95% CL Mean** | | **Std Dev** | **95% CL Std Dev** | |
| **ex** |  | 19.0000 | 16.9794 | 21.0206 | 4.6727 | 3.6139 | 6.6136 |
| **in** |  | 16.7583 | 14.3915 | 19.1252 | 5.6052 | 4.3564 | 7.8627 |
| **Diff (1-2)** | **Pooled** | 2.2417 | -0.7970 | 5.2803 | 5.1704 | 4.2885 | 6.5122 |
| **Diff (1-2)** | **Satterthwaite** | 2.2417 | -0.7867 | 5.2700 |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | **Variances** | **DF** | **t Value** | **Pr > |t|** |
| **Pooled** | Equal | 45 | 1.49 | 0.1443 |
| **Satterthwaite** | Unequal | 44.17 | 1.49 | 0.1429 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equality of Variances** | | | | |
| **Method** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **Folded F** | 23 | 22 | 1.44 | 0.3972 |

**Rand2:**

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| The SAS System |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Obs** | **score** | **treatment** | **rand2** | **newgroup** |
| **1** | 13.6 | Intrinsi | 0.04647 | in |
| **2** | 29.7 | Intrinsi | 0.09412 | in |
| **3** | 20.6 | Intrinsi | 0.09822 | in |
| **4** | 21.3 | Intrinsi | 0.10879 | in |
| **5** | 15.0 | Extrinsi | 0.12467 | in |
| **6** | 19.5 | Extrinsi | 0.14208 | in |
| **7** | 22.6 | Intrinsi | 0.14590 | in |
| **8** | 6.1 | Extrinsi | 0.17839 | in |
| **9** | 16.8 | Extrinsi | 0.18769 | in |
| **10** | 12.0 | Extrinsi | 0.22111 | in |
| **11** | 17.5 | Extrinsi | 0.26370 | in |
| **12** | 19.8 | Intrinsi | 0.28177 | in |
| **13** | 19.1 | Intrinsi | 0.31223 | in |
| **14** | 5.4 | Extrinsi | 0.32091 | in |
| **15** | 12.0 | Intrinsi | 0.32875 | in |
| **16** | 11.8 | Extrinsi | 0.35712 | in |
| **17** | 17.5 | Intrinsi | 0.37264 | in |
| **18** | 14.8 | Extrinsi | 0.39808 | in |
| **19** | 17.2 | Extrinsi | 0.43607 | in |
| **20** | 22.2 | Intrinsi | 0.48271 | in |
| **21** | 12.0 | Intrinsi | 0.52208 | in |
| **22** | 20.3 | Intrinsi | 0.52822 | in |
| **23** | 18.7 | Extrinsi | 0.53125 | in |
| **24** | 19.3 | Intrinsi | 0.53927 | in |
| **25** | 18.7 | Extrinsi | 0.55486 | ex |
| **26** | 20.5 | Intrinsi | 0.55841 | ex |
| **27** | 21.6 | Intrinsi | 0.58167 | ex |
| **28** | 18.2 | Intrinsi | 0.58847 | ex |
| **29** | 16.6 | Intrinsi | 0.61485 | ex |
| **30** | 21.2 | Extrinsi | 0.65310 | ex |
| **31** | 17.2 | Intrinsi | 0.65753 | ex |
| **32** | 22.1 | Intrinsi | 0.67487 | ex |
| **33** | 24.0 | Extrinsi | 0.70216 | ex |
| **34** | 18.5 | Extrinsi | 0.71393 | ex |
| **35** | 5.0 | Extrinsi | 0.75040 | ex |
| **36** | 23.1 | Intrinsi | 0.75111 | ex |
| **37** | 24.3 | Intrinsi | 0.75791 | ex |
| **38** | 22.1 | Extrinsi | 0.76996 | ex |
| **39** | 17.2 | Extrinsi | 0.77618 | ex |
| **40** | 12.3 | Extrinsi | 0.78644 | ex |
| **41** | 20.7 | Extrinsi | 0.86042 | ex |
| **42** | 19.2 | Extrinsi | 0.86134 | ex |
| **43** | 10.9 | Extrinsi | 0.90603 | ex |
| **44** | 12.9 | Intrinsi | 0.93340 | ex |
| **45** | 26.7 | Intrinsi | 0.96037 | ex |
| **46** | 24.0 | Intrinsi | 0.96094 | ex |
| **47** | 17.4 | Extrinsi | 0.96750 | ex |

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| The SAS System |

The TTEST Procedure

Variable: score

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **N** | **Mean** | **Std Dev** | **Std Err** | **Minimum** | **Maximum** |
| **ex** | 23 | 18.8870 | 4.9972 | 1.0420 | 5.0000 | 26.7000 |
| **in** | 24 | 16.8667 | 5.3758 | 1.0973 | 5.4000 | 29.7000 |
| **Diff (1-2)** |  | 2.0203 | 5.1941 | 1.5156 |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **Method** | **Mean** | **95% CL Mean** | | **Std Dev** | **95% CL Std Dev** | |
| **ex** |  | 18.8870 | 16.7260 | 21.0479 | 4.9972 | 3.8648 | 7.0728 |
| **in** |  | 16.8667 | 14.5967 | 19.1367 | 5.3758 | 4.1781 | 7.5409 |
| **Diff (1-2)** | **Pooled** | 2.0203 | -1.0323 | 5.0729 | 5.1941 | 4.3082 | 6.5421 |
| **Diff (1-2)** | **Satterthwaite** | 2.0203 | -1.0276 | 5.0682 |  |  |  |

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| --- | --- | --- | --- | --- |
| **Method** | **Variances** | **DF** | **t Value** | **Pr > |t|** |
| **Pooled** | Equal | 45 | 1.33 | 0.1893 |
| **Satterthwaite** | Unequal | 44.961 | 1.34 | 0.1886 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equality of Variances** | | | | |
| **Method** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **Folded F** | 23 | 22 | 1.16 | 0.7346 |

Source Code:

**data** test;

input score treatment $;

datalines;

5 Extrinsic

5.4 Extrinsic

6.1 Extrinsic

10.9 Extrinsic

11.8 Extrinsic

12 Extrinsic

12.3 Extrinsic

14.8 Extrinsic

15 Extrinsic

16.8 Extrinsic

17.2 Extrinsic

17.2 Extrinsic

17.4 Extrinsic

17.5 Extrinsic

18.5 Extrinsic

18.7 Extrinsic

18.7 Extrinsic

19.2 Extrinsic

19.5 Extrinsic

20.7 Extrinsic

21.2 Extrinsic

22.1 Extrinsic

24 Extrinsic

12 Intrinsic

12 Intrinsic

12.9 Intrinsic

13.6 Intrinsic

16.6 Intrinsic

17.2 Intrinsic

17.5 Intrinsic

18.2 Intrinsic

19.1 Intrinsic

19.3 Intrinsic

19.8 Intrinsic

20.3 Intrinsic

20.5 Intrinsic

20.6 Intrinsic

21.3 Intrinsic

21.6 Intrinsic

22.1 Intrinsic

22.2 Intrinsic

22.6 Intrinsic

23.1 Intrinsic

24 Intrinsic

24.3 Intrinsic

26.7 Intrinsic

29.7 Intrinsic

;

**proc** **print** data=test;

**run**;

**data** test3;

set test;

rand2 = ranuni(**123**);

**run**;

**proc** **print** data=test3;

**run**;

**proc** **sort** data = test3;

by rand2;

**run**;

**proc** **print** data = test3;

**run**;

**data** test4;

set test3;

newgroup = "ex";

if \_N\_ <= **24** then newgroup="in";

**run**;

**proc** **print** data = test4;

**run**;

**proc** **ttest** data = test4;

class newgroup;

var score;

**run**;

**Rand3:**

|  |
| --- |
| The SAS System |

| **Obs** | **score** | **treatment** | **rand3** | **newgroup** |
| --- | --- | --- | --- | --- |
| **1** | 19.2 | Extrinsi | 0.02572 | in |
| **2** | 18.7 | Extrinsi | 0.05107 | in |
| **3** | 17.5 | Intrinsi | 0.06961 | in |
| **4** | 23.1 | Intrinsi | 0.08239 | in |
| **5** | 12.0 | Intrinsi | 0.09284 | in |
| **6** | 29.7 | Intrinsi | 0.09325 | in |
| **7** | 20.7 | Extrinsi | 0.14509 | in |
| **8** | 12.0 | Intrinsi | 0.14731 | in |
| **9** | 18.5 | Extrinsi | 0.17323 | in |
| **10** | 17.5 | Extrinsi | 0.17868 | in |
| **11** | 15.0 | Extrinsi | 0.17894 | in |
| **12** | 26.7 | Intrinsi | 0.23030 | in |
| **13** | 19.3 | Intrinsi | 0.26869 | in |
| **14** | 18.2 | Intrinsi | 0.28474 | in |
| **15** | 12.3 | Extrinsi | 0.32781 | in |
| **16** | 12.0 | Extrinsi | 0.40069 | in |
| **17** | 22.1 | Extrinsi | 0.40353 | in |
| **18** | 17.4 | Extrinsi | 0.42104 | in |
| **19** | 20.3 | Intrinsi | 0.43282 | in |
| **20** | 14.8 | Extrinsi | 0.43364 | in |
| **21** | 21.6 | Intrinsi | 0.43638 | in |
| **22** | 21.2 | Extrinsi | 0.44161 | in |
| **23** | 24.0 | Intrinsi | 0.45141 | in |
| **24** | 22.2 | Intrinsi | 0.45151 | in |
| **25** | 10.9 | Extrinsi | 0.49253 | ex |
| **26** | 12.9 | Intrinsi | 0.52051 | ex |
| **27** | 22.6 | Intrinsi | 0.53119 | ex |
| **28** | 18.7 | Extrinsi | 0.53192 | ex |
| **29** | 20.5 | Intrinsi | 0.54188 | ex |
| **30** | 19.8 | Intrinsi | 0.54642 | ex |
| **31** | 24.3 | Intrinsi | 0.66244 | ex |
| **32** | 17.2 | Extrinsi | 0.66491 | ex |
| **33** | 16.6 | Intrinsi | 0.67581 | ex |
| **34** | 5.4 | Extrinsi | 0.68061 | ex |
| **35** | 24.0 | Extrinsi | 0.70117 | ex |
| **36** | 17.2 | Extrinsi | 0.73533 | ex |
| **37** | 19.1 | Intrinsi | 0.77822 | ex |
| **38** | 5.0 | Extrinsi | 0.81209 | ex |
| **39** | 20.6 | Intrinsi | 0.90964 | ex |
| **40** | 13.6 | Intrinsi | 0.91082 | ex |
| **41** | 6.1 | Extrinsi | 0.93939 | ex |
| **42** | 11.8 | Extrinsi | 0.95289 | ex |
| **43** | 16.8 | Extrinsi | 0.96546 | ex |
| **44** | 19.5 | Extrinsi | 0.98388 | ex |
| **45** | 21.3 | Intrinsi | 0.98807 | ex |
| **46** | 22.1 | Intrinsi | 0.99048 | ex |
| **47** | 17.2 | Intrinsi | 0.99063 | ex |

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| --- |
| The SAS System |

The TTEST Procedure

Variable: score

| **newgroup** | **N** | **Mean** | **Std Dev** | **Std Err** | **Minimum** | **Maximum** |
| --- | --- | --- | --- | --- | --- | --- |
| **ex** | 23 | 16.6609 | 5.6906 | 1.1866 | 5.0000 | 24.3000 |
| **in** | 24 | 19.0000 | 4.5936 | 0.9377 | 12.0000 | 29.7000 |
| **Diff (1-2)** |  | -2.3391 | 5.1591 | 1.5054 |  |  |

| **newgroup** | **Method** | **Mean** | **95% CL Mean** | | **Std Dev** | **95% CL Std Dev** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ex** |  | 16.6609 | 14.2001 | 19.1217 | 5.6906 | 4.4011 | 8.0541 |
| **in** |  | 19.0000 | 17.0603 | 20.9397 | 4.5936 | 3.5702 | 6.4437 |
| **Diff (1-2)** | **Pooled** | -2.3391 | -5.3712 | 0.6929 | 5.1591 | 4.2792 | 6.4980 |
| **Diff (1-2)** | **Satterthwaite** | -2.3391 | -5.3905 | 0.7123 |  |  |  |

| **Method** | **Variances** | **DF** | **t Value** | **Pr > |t|** |
| --- | --- | --- | --- | --- |
| **Pooled** | Equal | 45 | -1.55 | 0.1272 |
| **Satterthwaite** | Unequal | 42.284 | -1.55 | 0.1294 |

| **Equality of Variances** | | | | |
| --- | --- | --- | --- | --- |
| **Method** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **Folded F** | 22 | 23 | 1.53 | 0.3148 |

**Rand4:**

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| The SAS System |

| **Obs** | **score** | **treatment** |
| --- | --- | --- |
| **1** | 5.0 | Extrinsi |
| **2** | 5.4 | Extrinsi |
| **3** | 6.1 | Extrinsi |
| **4** | 10.9 | Extrinsi |
| **5** | 11.8 | Extrinsi |
| **6** | 12.0 | Extrinsi |
| **7** | 12.3 | Extrinsi |
| **8** | 14.8 | Extrinsi |
| **9** | 15.0 | Extrinsi |
| **10** | 16.8 | Extrinsi |
| **11** | 17.2 | Extrinsi |
| **12** | 17.2 | Extrinsi |
| **13** | 17.4 | Extrinsi |
| **14** | 17.5 | Extrinsi |
| **15** | 18.5 | Extrinsi |
| **16** | 18.7 | Extrinsi |
| **17** | 18.7 | Extrinsi |
| **18** | 19.2 | Extrinsi |
| **19** | 19.5 | Extrinsi |
| **20** | 20.7 | Extrinsi |
| **21** | 21.2 | Extrinsi |
| **22** | 22.1 | Extrinsi |
| **23** | 24.0 | Extrinsi |
| **24** | 12.0 | Intrinsi |
| **25** | 12.0 | Intrinsi |
| **26** | 12.9 | Intrinsi |
| **27** | 13.6 | Intrinsi |
| **28** | 16.6 | Intrinsi |
| **29** | 17.2 | Intrinsi |
| **30** | 17.5 | Intrinsi |
| **31** | 18.2 | Intrinsi |
| **32** | 19.1 | Intrinsi |
| **33** | 19.3 | Intrinsi |
| **34** | 19.8 | Intrinsi |
| **35** | 20.3 | Intrinsi |
| **36** | 20.5 | Intrinsi |
| **37** | 20.6 | Intrinsi |
| **38** | 21.3 | Intrinsi |
| **39** | 21.6 | Intrinsi |
| **40** | 22.1 | Intrinsi |
| **41** | 22.2 | Intrinsi |
| **42** | 22.6 | Intrinsi |
| **43** | 23.1 | Intrinsi |
| **44** | 24.0 | Intrinsi |
| **45** | 24.3 | Intrinsi |
| **46** | 26.7 | Intrinsi |
| **47** | 29.7 | Intrinsi |

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| The SAS System |

| **Obs** | **score** | **treatment** | **rand4** |
| --- | --- | --- | --- |
| **1** | 5.0 | Extrinsi | 0.39703 |
| **2** | 5.4 | Extrinsi | 0.62890 |
| **3** | 6.1 | Extrinsi | 0.16258 |
| **4** | 10.9 | Extrinsi | 0.25191 |
| **5** | 11.8 | Extrinsi | 0.30135 |
| **6** | 12.0 | Extrinsi | 0.45608 |
| **7** | 12.3 | Extrinsi | 0.65456 |
| **8** | 14.8 | Extrinsi | 0.25034 |
| **9** | 15.0 | Extrinsi | 0.60613 |
| **10** | 16.8 | Extrinsi | 0.17868 |
| **11** | 17.2 | Extrinsi | 0.51486 |
| **12** | 17.2 | Extrinsi | 0.58442 |
| **13** | 17.4 | Extrinsi | 0.77299 |
| **14** | 17.5 | Extrinsi | 0.31031 |
| **15** | 18.5 | Extrinsi | 0.84608 |
| **16** | 18.7 | Extrinsi | 0.30231 |
| **17** | 18.7 | Extrinsi | 0.06631 |
| **18** | 19.2 | Extrinsi | 0.95501 |
| **19** | 19.5 | Extrinsi | 0.05092 |
| **20** | 20.7 | Extrinsi | 0.24610 |
| **21** | 21.2 | Extrinsi | 0.59439 |
| **22** | 22.1 | Extrinsi | 0.91870 |
| **23** | 24.0 | Extrinsi | 0.97203 |
| **24** | 12.0 | Intrinsi | 0.17906 |
| **25** | 12.0 | Intrinsi | 0.34312 |
| **26** | 12.9 | Intrinsi | 0.98223 |
| **27** | 13.6 | Intrinsi | 0.15364 |
| **28** | 16.6 | Intrinsi | 0.74767 |
| **29** | 17.2 | Intrinsi | 0.08987 |
| **30** | 17.5 | Intrinsi | 0.30385 |
| **31** | 18.2 | Intrinsi | 0.14101 |
| **32** | 19.1 | Intrinsi | 0.90655 |
| **33** | 19.3 | Intrinsi | 0.34850 |
| **34** | 19.8 | Intrinsi | 0.90257 |
| **35** | 20.3 | Intrinsi | 0.59765 |
| **36** | 20.5 | Intrinsi | 0.30847 |
| **37** | 20.6 | Intrinsi | 0.29204 |
| **38** | 21.3 | Intrinsi | 0.62741 |
| **39** | 21.6 | Intrinsi | 0.73898 |
| **40** | 22.1 | Intrinsi | 0.80282 |
| **41** | 22.2 | Intrinsi | 0.47006 |
| **42** | 22.6 | Intrinsi | 0.54534 |
| **43** | 23.1 | Intrinsi | 0.64217 |
| **44** | 24.0 | Intrinsi | 0.07870 |
| **45** | 24.3 | Intrinsi | 0.80029 |
| **46** | 26.7 | Intrinsi | 0.15088 |
| **47** | 29.7 | Intrinsi | 0.55323 |

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| --- |
| The SAS System |

| **Obs** | **score** | **treatment** | **rand4** |
| --- | --- | --- | --- |
| **1** | 19.5 | Extrinsi | 0.05092 |
| **2** | 18.7 | Extrinsi | 0.06631 |
| **3** | 24.0 | Intrinsi | 0.07870 |
| **4** | 17.2 | Intrinsi | 0.08987 |
| **5** | 18.2 | Intrinsi | 0.14101 |
| **6** | 26.7 | Intrinsi | 0.15088 |
| **7** | 13.6 | Intrinsi | 0.15364 |
| **8** | 6.1 | Extrinsi | 0.16258 |
| **9** | 16.8 | Extrinsi | 0.17868 |
| **10** | 12.0 | Intrinsi | 0.17906 |
| **11** | 20.7 | Extrinsi | 0.24610 |
| **12** | 14.8 | Extrinsi | 0.25034 |
| **13** | 10.9 | Extrinsi | 0.25191 |
| **14** | 20.6 | Intrinsi | 0.29204 |
| **15** | 11.8 | Extrinsi | 0.30135 |
| **16** | 18.7 | Extrinsi | 0.30231 |
| **17** | 17.5 | Intrinsi | 0.30385 |
| **18** | 20.5 | Intrinsi | 0.30847 |
| **19** | 17.5 | Extrinsi | 0.31031 |
| **20** | 12.0 | Intrinsi | 0.34312 |
| **21** | 19.3 | Intrinsi | 0.34850 |
| **22** | 5.0 | Extrinsi | 0.39703 |
| **23** | 12.0 | Extrinsi | 0.45608 |
| **24** | 22.2 | Intrinsi | 0.47006 |
| **25** | 17.2 | Extrinsi | 0.51486 |
| **26** | 22.6 | Intrinsi | 0.54534 |
| **27** | 29.7 | Intrinsi | 0.55323 |
| **28** | 17.2 | Extrinsi | 0.58442 |
| **29** | 21.2 | Extrinsi | 0.59439 |
| **30** | 20.3 | Intrinsi | 0.59765 |
| **31** | 15.0 | Extrinsi | 0.60613 |
| **32** | 21.3 | Intrinsi | 0.62741 |
| **33** | 5.4 | Extrinsi | 0.62890 |
| **34** | 23.1 | Intrinsi | 0.64217 |
| **35** | 12.3 | Extrinsi | 0.65456 |
| **36** | 21.6 | Intrinsi | 0.73898 |
| **37** | 16.6 | Intrinsi | 0.74767 |
| **38** | 17.4 | Extrinsi | 0.77299 |
| **39** | 24.3 | Intrinsi | 0.80029 |
| **40** | 22.1 | Intrinsi | 0.80282 |
| **41** | 18.5 | Extrinsi | 0.84608 |
| **42** | 19.8 | Intrinsi | 0.90257 |
| **43** | 19.1 | Intrinsi | 0.90655 |
| **44** | 22.1 | Extrinsi | 0.91870 |
| **45** | 19.2 | Extrinsi | 0.95501 |
| **46** | 24.0 | Extrinsi | 0.97203 |
| **47** | 12.9 | Intrinsi | 0.98223 |

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| The SAS System |

| **Obs** | **score** | **treatment** | **rand4** | **newgroup** |
| --- | --- | --- | --- | --- |
| **1** | 19.5 | Extrinsi | 0.05092 | in |
| **2** | 18.7 | Extrinsi | 0.06631 | in |
| **3** | 24.0 | Intrinsi | 0.07870 | in |
| **4** | 17.2 | Intrinsi | 0.08987 | in |
| **5** | 18.2 | Intrinsi | 0.14101 | in |
| **6** | 26.7 | Intrinsi | 0.15088 | in |
| **7** | 13.6 | Intrinsi | 0.15364 | in |
| **8** | 6.1 | Extrinsi | 0.16258 | in |
| **9** | 16.8 | Extrinsi | 0.17868 | in |
| **10** | 12.0 | Intrinsi | 0.17906 | in |
| **11** | 20.7 | Extrinsi | 0.24610 | in |
| **12** | 14.8 | Extrinsi | 0.25034 | in |
| **13** | 10.9 | Extrinsi | 0.25191 | in |
| **14** | 20.6 | Intrinsi | 0.29204 | in |
| **15** | 11.8 | Extrinsi | 0.30135 | in |
| **16** | 18.7 | Extrinsi | 0.30231 | in |
| **17** | 17.5 | Intrinsi | 0.30385 | in |
| **18** | 20.5 | Intrinsi | 0.30847 | in |
| **19** | 17.5 | Extrinsi | 0.31031 | in |
| **20** | 12.0 | Intrinsi | 0.34312 | in |
| **21** | 19.3 | Intrinsi | 0.34850 | in |
| **22** | 5.0 | Extrinsi | 0.39703 | in |
| **23** | 12.0 | Extrinsi | 0.45608 | in |
| **24** | 22.2 | Intrinsi | 0.47006 | in |
| **25** | 17.2 | Extrinsi | 0.51486 | ex |
| **26** | 22.6 | Intrinsi | 0.54534 | ex |
| **27** | 29.7 | Intrinsi | 0.55323 | ex |
| **28** | 17.2 | Extrinsi | 0.58442 | ex |
| **29** | 21.2 | Extrinsi | 0.59439 | ex |
| **30** | 20.3 | Intrinsi | 0.59765 | ex |
| **31** | 15.0 | Extrinsi | 0.60613 | ex |
| **32** | 21.3 | Intrinsi | 0.62741 | ex |
| **33** | 5.4 | Extrinsi | 0.62890 | ex |
| **34** | 23.1 | Intrinsi | 0.64217 | ex |
| **35** | 12.3 | Extrinsi | 0.65456 | ex |
| **36** | 21.6 | Intrinsi | 0.73898 | ex |
| **37** | 16.6 | Intrinsi | 0.74767 | ex |
| **38** | 17.4 | Extrinsi | 0.77299 | ex |
| **39** | 24.3 | Intrinsi | 0.80029 | ex |
| **40** | 22.1 | Intrinsi | 0.80282 | ex |
| **41** | 18.5 | Extrinsi | 0.84608 | ex |
| **42** | 19.8 | Intrinsi | 0.90257 | ex |
| **43** | 19.1 | Intrinsi | 0.90655 | ex |
| **44** | 22.1 | Extrinsi | 0.91870 | ex |
| **45** | 19.2 | Extrinsi | 0.95501 | ex |
| **46** | 24.0 | Extrinsi | 0.97203 | ex |
| **47** | 12.9 | Intrinsi | 0.98223 | ex |

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| The SAS System |

The TTEST Procedure

Variable: score

| **newgroup** | **N** | **Mean** | **Std Dev** | **Std Err** | **Minimum** | **Maximum** |
| --- | --- | --- | --- | --- | --- | --- |
| **ex** | 23 | 19.2565 | 4.9195 | 1.0258 | 5.4000 | 29.7000 |
| **in** | 24 | 16.5125 | 5.2797 | 1.0777 | 5.0000 | 26.7000 |
| **Diff (1-2)** |  | 2.7440 | 5.1068 | 1.4901 |  |  |

| **newgroup** | **Method** | **Mean** | **95% CL Mean** | | **Std Dev** | **95% CL Std Dev** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ex** |  | 19.2565 | 17.1292 | 21.3839 | 4.9195 | 3.8047 | 6.9628 |
| **in** |  | 16.5125 | 14.2831 | 18.7419 | 5.2797 | 4.1034 | 7.4061 |
| **Diff (1-2)** | **Pooled** | 2.7440 | -0.2573 | 5.7453 | 5.1068 | 4.2358 | 6.4321 |
| **Diff (1-2)** | **Satterthwaite** | 2.7440 | -0.2527 | 5.7408 |  |  |  |

| **Method** | **Variances** | **DF** | **t Value** | **Pr > |t|** |
| --- | --- | --- | --- | --- |
| **Pooled** | Equal | 45 | 1.84 | 0.0722 |
| **Satterthwaite** | Unequal | 44.967 | 1.84 | 0.0717 |

| **Equality of Variances** | | | | |
| --- | --- | --- | --- | --- |
| **Method** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **Folded F** | 23 | 22 | 1.15 | 0.7430 |

**Rand5:**

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| The SAS System |

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| --- | --- | --- | --- |
| **Obs** | **score** | **treatment** | **rand5** |
| **1** | 17.2 | Extrinsi | 0.00126 |
| **2** | 17.2 | Intrinsi | 0.00867 |
| **3** | 24.0 | Intrinsi | 0.02001 |
| **4** | 17.5 | Intrinsi | 0.02129 |
| **5** | 24.3 | Intrinsi | 0.05114 |
| **6** | 21.6 | Intrinsi | 0.12777 |
| **7** | 12.0 | Extrinsi | 0.13803 |
| **8** | 17.2 | Extrinsi | 0.16244 |
| **9** | 12.0 | Intrinsi | 0.19942 |
| **10** | 18.5 | Extrinsi | 0.20466 |
| **11** | 12.9 | Intrinsi | 0.24082 |
| **12** | 19.8 | Intrinsi | 0.24754 |
| **13** | 10.9 | Extrinsi | 0.26697 |
| **14** | 20.3 | Intrinsi | 0.28097 |
| **15** | 24.0 | Extrinsi | 0.29587 |
| **16** | 12.3 | Extrinsi | 0.29631 |
| **17** | 6.1 | Extrinsi | 0.34360 |
| **18** | 16.8 | Extrinsi | 0.36786 |
| **19** | 5.0 | Extrinsi | 0.37298 |
| **20** | 5.4 | Extrinsi | 0.39848 |
| **21** | 18.7 | Extrinsi | 0.39926 |
| **22** | 20.5 | Intrinsi | 0.40853 |
| **23** | 22.2 | Intrinsi | 0.45488 |
| **24** | 19.2 | Extrinsi | 0.46741 |
| **25** | 22.1 | Extrinsi | 0.49720 |
| **26** | 16.6 | Intrinsi | 0.50706 |
| **27** | 18.7 | Extrinsi | 0.50838 |
| **28** | 20.6 | Intrinsi | 0.52462 |
| **29** | 19.5 | Extrinsi | 0.54152 |
| **30** | 17.5 | Extrinsi | 0.56625 |
| **31** | 26.7 | Intrinsi | 0.57949 |
| **32** | 19.1 | Intrinsi | 0.61973 |
| **33** | 22.6 | Intrinsi | 0.62467 |
| **34** | 21.3 | Intrinsi | 0.64977 |
| **35** | 14.8 | Extrinsi | 0.67304 |
| **36** | 13.6 | Intrinsi | 0.68224 |
| **37** | 20.7 | Extrinsi | 0.70891 |
| **38** | 12.0 | Intrinsi | 0.72837 |
| **39** | 18.2 | Intrinsi | 0.80406 |
| **40** | 11.8 | Extrinsi | 0.83443 |
| **41** | 29.7 | Intrinsi | 0.90416 |
| **42** | 23.1 | Intrinsi | 0.91144 |
| **43** | 19.3 | Intrinsi | 0.91956 |
| **44** | 21.2 | Extrinsi | 0.92393 |
| **45** | 17.4 | Extrinsi | 0.93957 |
| **46** | 22.1 | Intrinsi | 0.95636 |
| **47** | 15.0 | Extrinsi | 0.98388 |

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| The SAS System |

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| **Obs** | **score** | **treatment** | **rand5** | **newgroup** |
| **1** | 17.2 | Extrinsi | 0.00126 | in |
| **2** | 17.2 | Intrinsi | 0.00867 | in |
| **3** | 24.0 | Intrinsi | 0.02001 | in |
| **4** | 17.5 | Intrinsi | 0.02129 | in |
| **5** | 24.3 | Intrinsi | 0.05114 | in |
| **6** | 21.6 | Intrinsi | 0.12777 | in |
| **7** | 12.0 | Extrinsi | 0.13803 | in |
| **8** | 17.2 | Extrinsi | 0.16244 | in |
| **9** | 12.0 | Intrinsi | 0.19942 | in |
| **10** | 18.5 | Extrinsi | 0.20466 | in |
| **11** | 12.9 | Intrinsi | 0.24082 | in |
| **12** | 19.8 | Intrinsi | 0.24754 | in |
| **13** | 10.9 | Extrinsi | 0.26697 | in |
| **14** | 20.3 | Intrinsi | 0.28097 | in |
| **15** | 24.0 | Extrinsi | 0.29587 | in |
| **16** | 12.3 | Extrinsi | 0.29631 | in |
| **17** | 6.1 | Extrinsi | 0.34360 | in |
| **18** | 16.8 | Extrinsi | 0.36786 | in |
| **19** | 5.0 | Extrinsi | 0.37298 | in |
| **20** | 5.4 | Extrinsi | 0.39848 | in |
| **21** | 18.7 | Extrinsi | 0.39926 | in |
| **22** | 20.5 | Intrinsi | 0.40853 | in |
| **23** | 22.2 | Intrinsi | 0.45488 | in |
| **24** | 19.2 | Extrinsi | 0.46741 | in |
| **25** | 22.1 | Extrinsi | 0.49720 | ex |
| **26** | 16.6 | Intrinsi | 0.50706 | ex |
| **27** | 18.7 | Extrinsi | 0.50838 | ex |
| **28** | 20.6 | Intrinsi | 0.52462 | ex |
| **29** | 19.5 | Extrinsi | 0.54152 | ex |
| **30** | 17.5 | Extrinsi | 0.56625 | ex |
| **31** | 26.7 | Intrinsi | 0.57949 | ex |
| **32** | 19.1 | Intrinsi | 0.61973 | ex |
| **33** | 22.6 | Intrinsi | 0.62467 | ex |
| **34** | 21.3 | Intrinsi | 0.64977 | ex |
| **35** | 14.8 | Extrinsi | 0.67304 | ex |
| **36** | 13.6 | Intrinsi | 0.68224 | ex |
| **37** | 20.7 | Extrinsi | 0.70891 | ex |
| **38** | 12.0 | Intrinsi | 0.72837 | ex |
| **39** | 18.2 | Intrinsi | 0.80406 | ex |
| **40** | 11.8 | Extrinsi | 0.83443 | ex |
| **41** | 29.7 | Intrinsi | 0.90416 | ex |
| **42** | 23.1 | Intrinsi | 0.91144 | ex |
| **43** | 19.3 | Intrinsi | 0.91956 | ex |
| **44** | 21.2 | Extrinsi | 0.92393 | ex |
| **45** | 17.4 | Extrinsi | 0.93957 | ex |
| **46** | 22.1 | Intrinsi | 0.95636 | ex |
| **47** | 15.0 | Extrinsi | 0.98388 | ex |

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| The SAS System |

The TTEST Procedure

Variable: score

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **N** | **Mean** | **Std Dev** | **Std Err** | **Minimum** | **Maximum** |
| **ex** | 23 | 19.2870 | 4.3262 | 0.9021 | 11.8000 | 29.7000 |
| **in** | 24 | 16.4833 | 5.7405 | 1.1718 | 5.0000 | 24.3000 |
| **Diff (1-2)** |  | 2.8036 | 5.0983 | 1.4877 |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **newgroup** | **Method** | **Mean** | **95% CL Mean** | | **Std Dev** | **95% CL Std Dev** | |
| **ex** |  | 19.2870 | 17.4162 | 21.1577 | 4.3262 | 3.3458 | 6.1230 |
| **in** |  | 16.4833 | 14.0593 | 18.9073 | 5.7405 | 4.4616 | 8.0526 |
| **Diff (1-2)** | **Pooled** | 2.8036 | -0.1927 | 5.7999 | 5.0983 | 4.2287 | 6.4215 |
| **Diff (1-2)** | **Satterthwaite** | 2.8036 | -0.1793 | 5.7865 |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | **Variances** | **DF** | **t Value** | **Pr > |t|** |
| **Pooled** | Equal | 45 | 1.88 | 0.0660 |
| **Satterthwaite** | Unequal | 42.671 | 1.90 | 0.0648 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equality of Variances** | | | | |
| **Method** | **Num DF** | **Den DF** | **F Value** | **Pr > F** |
| **Folded F** | 23 | 22 | 1.76 | 0.1895 |