

Mutation with Self-Adaptive Penalty Function - Input 2  
F-Test Two-Sample for Variances

Flip      Move

|                     | <i>Variable 1</i> | <i>Variable 2</i> |
|---------------------|-------------------|-------------------|
| Mean                | -329.475          | -55.2042          |
| Variance            | 92.1249           | 95.86191          |
| Observations        | 240               | 240               |
| df                  | 239               | 239               |
| F                   | 0.961017          |                   |
| P(F<=f) one-tail    | 0.379409          |                   |
| F Critical one-tail | 0.80798           |                   |

$M(1) < M(2)$  and  $F > F \text{ Critical} \Rightarrow \text{Equal}$

t-Test: Two-Sample Assuming Equal Variances

|                              | <i>Variable 1</i> | <i>Variable 2</i> |
|------------------------------|-------------------|-------------------|
| Mean                         | -329.475          | -55.2042          |
| Variance                     | 92.1249           | 95.86191          |
| Observations                 | 240               | 240               |
| Pooled Variance              | 93.9934           |                   |
| Hypothesized Mean Difference | 0                 |                   |
| df                           | 478               |                   |
| t Stat                       | -309.9            |                   |
| P(T<=t) one-tail             | 0                 |                   |
| t Critical one-tail          | 1.648048          |                   |
| P(T<=t) two-tail             | 0                 |                   |
| t Critical two-tail          | 1.964939          |                   |

$t \text{ Stat} < t \text{ Critical} \Rightarrow \text{No significant Difference}$