**Type I and Type II errors**

Managers at an automobile manufacturing plant would like to examine the mean completion time, http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%25nv, of an assembly line operation. The past data indicate that the mean completion time is http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?70minutes, but the managers have reason to believe that this value has decreased. The managers plan to perform a [statistical test](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/171DELZ7DLueDF5ZopIedkR46dcKJzObt64es4aCbcjbDuSHfR1jf4HsoDkmskqSfMnqEN-_6WbStMzl8sUttAGZmc54v4F8DRgi3ASKe5N2ZsAYmcq?18nVJUIk1HSdvAgrxojkjyKZlJ0Nd-9Rd2Ieg6Pu6i0w5Jd3Uf803MoAkKbZ7IBg7Bgans7eDUaj2O0dNolbE6RoKVTrt0MQD64J-geRTj0N0PjVH3oxdjo).

After choosing a [random sample](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1EMdJe1xBeVcBY7jWgFc5l90nXRsawKAVbDcQRYR8byABnvbeuMaeR-_WHvSQMD8ejAEJzKCnCm8VjVNOiBBVd5G0r70ER0iBa_ZChvVitwf2BM_0ro?1MN4gKruFx-a6QAwX0kukpGLhA2wpVwlT4a7rKmpQyQQVIX3VfTx_7enonNJO5PbU0hEDaKzlCnltsUf-_f5an3lwsW-2Egmw9Q7TguR7jCNsPg2) of assembly line completion times, the managers compute the sample [mean](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1orBV_i-T_-iTRTlm8UxJVpsIY72fqasn-1iXJsry-zsTbL546rm4JjQmytxXTA34ABTVKapILE3nAOLU9PGnFul8sTYtJJOTcNzznL2Yj2b9Hbv8so?1-Do3lq7ckjLHxB1ZW67uwvCahxpckxLUih65-zDgbNC45rCddxUuD1l0j2OSWb5tCLqU-sa_If5aFLlwYwfpD-Lnh_GU2zqV-CfU) completion time to be http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?71minutes. The [standard deviation](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1_PLtPg3qPdtqvW9jL18EYVyi8uoVbty6sUtFBhHkV7yqraAgSPXgBcUj5a8FYUig1XKtcRvitFi61kkyzrn6ZL9bVW6MBMZqSqOPZao4O0H_z_CbVq?1N1oN8Z7jZQLY9x1mK57LrRIcSjmg_iwL02tzVF8HCImICynWdG1aAA0BOwFnMNMnUqzz9ON8mhOhWIStlnqY-VP_zf43FZR8-UigEBQUhIesg7sEfAiico) of the [population](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1icWkAVEdA2Hd-FswrHhb4EDLb38y2Ie1LYhPDUjetNDdCqMuWS_uDXBwdqpP4YruRsmkWInLM7q1R2fiPG11cosptFN9D-1dHvKTcq8hYW-V_cJptR?1epF1YLANn_1OW6kA54AVbN4gScKhBsdkV7Np-8y3CIJkpJbFP-aXQHa9s8zPnQWeSy2WYHil1Xk3h4vibFxxeXWy96Mun3yKVTw31JkLh5M6) of completion times can be assumed not to have changed from the previously reported value of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?7minutes.

Based on this information, answer the questions below.

What are the null hypothesis and the alternative hypothesis that should be used for the test? \_\_\_\_\_\_\_\_

In the context of this test, what is a type II error? \_\_\_\_\_\_\_\_\_

A type II error is\_\_\_\_\_\_\_\_\_\_, the null hypothesis that is µ is\_\_\_\_\_\_\_\_\_\_ when, in fact, µ is \_\_\_\_\_\_\_\_

Suppose that the managers decided not to reject the null hypothesis. What sort of error would they be making? \_\_\_\_\_\_\_\_\_\_\_