According to a high-profile realtor, houses in the sleepy town of Sun Beach have shown higher appreciation over the past three years than have houses in the bustling town of North Arden. To test the realtor's claim, an economist has found fourteen recently sold homes in Sun Beach and fourteen recently sold homes in North Arden that were owned for exactly three years. The following table gives the appreciation (expressed as a percentage increase) for each of the twenty-eight houses.

|  |  |
| --- | --- |
|  | **Appreciation rates in percent** |
| **Sun Beach** | |  | | --- | |  |   13.6, 9.8, 9.9, 8.9, 7.5, 12.5,  9.1, 9.0, 10.4, 9.9, 10.3, 10.6,  16.8, 9.1 |
| **North Arden** | |  | | --- | |  |   7.0, 7.8, 4.0, 7.5, 6.6, 7.6, 9.8,  9.1, 7.1, 8.4, 8.8, 11.3, 4.9,  11.4 |

|  |  |  |
| --- | --- | --- |
| [http://www.phoenix.aleks.com/aleks/gif/student/excelw.gif](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1o_u-IgNsIkasNW8D8A9PVVf0eTFOLZnRtzRMGDlhUIS9HkNxmBZYcfIbl7qAYYf9TFpI2n0cqEPrB2HlD-3SOViWRHq2te9g-7GmttFFsp-0abpbMDtuaq/data_1793990464.xls?1oBffQwqllavsnKUTPiiQeUlv7nnNwb1Y_d_n0sEljE-YNWhMlazZ66mQI--gf1cv4m5vnbUAakPQPhNlvw0-7wF6M3ng2R2) |  | [Send data to Excel](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1o_u-IgNsIkasNW8D8A9PVVf0eTFOLZnRtzRMGDlhUIS9HkNxmBZYcfIbl7qAYYf9TFpI2n0cqEPrB2HlD-3SOViWRHq2te9g-7GmttFFsp-0abpbMDtuaq/data_1793990464.xls?1oBffQwqllavsnKUTPiiQeUlv7nnNwb1Y_d_n0sEljE-YNWhMlazZ66mQI--gf1cv4m5vnbUAakPQPhNlvw0-7wF6M3ng2R2) |

Assume that the two populations of appreciation rates are normally distributed and that the population variances are equal. Can we conclude, at the http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?3%2D32level of significance, that houses in Sun Beach have higher appreciation over the past three years than houses in North Arden?

Perform a one-tailed test. Then fill in the table below.

Carry your intermediate computations to at least three decimal places and round your answers as specified in the table. (If necessary, consult a [list of formulas](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1Kt4q66K4cPb4_iPGmOrDEMkvagftRHRVQ0dQo-f8Q90B774eZ4ueofIdUo5fXyMnhxJ5c5zNqwlnqzoTMNqyXLA-55nu535cHvKTKy0cVpdeofeXgY9?13b1vzBgOmWl78FRRfVfni0E5szorMa4F2DsUXt55dlm5A-gTfEDsrDl3g4Iz2yVgKr1-Soj9YUi-I6nn2etzVnRhgvGQ6o).)

The null hypothesis Ho:

The alternate hypothesis H1:

The type of test statistic: Z, t, chi square, or F:

The value of the test statistic: (Round to at least three decimal places):

The p-value (Round to at least three decimal places):

Can we conclude that houses in Sun Beach have higher appreciation over the past three years than houses in North Arden?