**Hypothesis tests for the correlation coefficient and the slope of the least-squares regression line**

Newburg Park, Florida is a popular, beach resort town. Property values are fairly high there and, as such, are rather well studied. One topic of study has been the relationship between housing prices and distance from the beach.

For a recent sample of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?25houses sold in Newburg Park in the past year, the [least-squares regression equation](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1ESHBeT0ieChiYnsHg9hKMDDZXq7oF_eTb8hfRwj7roein4XmukPmRgiiPxOiZucqjpgAPluj532Z-CiPIf7w2exjQdW6zr4ZFZJtl8id1Gu-coRz8CD?1GYl2byIncl_c_GZgpPIdC4X_HSaEDi6MjHqVbzS_UvZo9kYNNU6QeUj0tLCN3fBJpMbaAArGmUq8rq7X3oxWtEPbJjbm3qexbY330SmBZN2FsA-B_jI6UmFnsWteeUR0YLjbr3ej56ZmadfGvWytTzv_C9l#leastSquaresLine) relating the variables *house price* (denoted by http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%7B, in thousands of dollars) and *distance from the beach* (denoted by http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?z, in miles) was http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%3Fbaluf%23pznalo%3Ekbw%3Dz%3F%2Cbaluf%3D%23%3E%23030%2D%3B5%23%2E%236%2D7%3B%23%7B. The [standard error](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1FLI0nKQAZ__A9Jbz0G_cJlOyi0g_DU-8_S_G5PLtP2-AmAFRtLAR5NeArF8ANOubSvnElexOQiKyhIeJ4Hgn0MmO6RoSLEwyeBN4xcepUuxVj2TazIj?1gqA5SxXkBhgzjUfyE-goHkEOeWjATn5o4t7CkxCySxmXBhrnO99r4NV7yrV6kxTWE1jxOCasBlWoFusF-1ibASXeytxlGCr1arelCzhvv2gEojGR) of the slope of the least-squares regression line was approximately http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?0%2D%3A0.

Based on this information, test for a significant [linear relationship](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/127ohC5vpUIIphxbnxj_lIrOqPiXK0C-Duc_Jn_LNagOp10FoY7AonmDptwtpEGuQ5RFHqDxBmBKqcoDS7Wg7xlmB3toMT1wqAJNvo6eCXzxARgT3poj?1HJ_a0C8xT77E2N0uL98mNYoV43Vb55e9Wluy0gfVRE0-b3SXSjeC6fKtJ0iXGDq8tLzOZKzFcfu6AVHzjprvxc7pwe9MGVwY0J1BZZ27fpiPzK572e81NhExurpl6fZtIiKpAsH9s80c2IMwcPK7x-YTjo#linearlyRelated) between the two variables by doing a hypothesis test regarding the [population slope](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1YVyx8uIJ7e5JwIvpdR5ycqJFkxGuHXBs5y5vqNeYKlBJzJtDmVhDq19JQ2NJuQnLl78if0dQIP4FgD9IRdOCdqzQbY65eiTF9Iu76a9SVpdGPlAHFex?16P_togtlQY8wqe0LOWtZiVPpVnV_Cae8KbuRoMQp0AEdTnSBnQeAwv5azBiBe1r9-89kXyzDFvufI-H7Ddb59K7VrE9Je-UHoPAXXFwzEdBrSyyzqEtUik1lk4pxwvnapJKV_-r2-8lUgq7kpPQGIkrGQxh#populationParams) http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%25afwb%3Fpva%3D2%3F%2Cpva%3D. (Assume that the variable http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?zfollows a normal distribution for each value of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%7Band that the other [regression assumptions](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1w75xFK_JnIKJHJQpijKyxlBFB0OuEUisIcKvyPmY_2iJeA8DL7pDymzJbFDJmOZLcv7irDcQvibFdozIqH-CiluQKty57EYFDJa7P6zSCzcGf21H9Ix?1Wjk9ipRIVnv0gL9HLDREmUcOqaet5IIppcKnidiONT9j4aCrclIXKrX8x-Hrj8jVLZ5fZ_5C6rKy0C3WjA-mxxvkU7ybjCtsijuPnu8Tf0Hoz_MTg7RiNiaIz6n4Krb8o-XkJhwz8nzNyKKY_-6f#assumptions) are satisfied.) Use the http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?3%2D23[level of significance](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1VVf9TzqzYeRzCo55SRv2K3MlcPSkpMXR3yvALmnfyrMzHxaxDVsxL1tzRgZz9QeOb8aav0-1aPIlMDtpmkk4Sq71qYfCEBWlWILG5a8n-p-eIrC6UDl?19MYJ1Ac1YzSvC34xq8cjRHst43v7yKKN9JHIAgE-fY0Lv1q-LZz8yQurzSr1DVs1vWyTrqIpk_p6wmhbG0LWoPISn3FnsV-Ju_CFgn0imiZKpvC7gzjVBq), and perform a [two-tailed test](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1GsfFO9qn-DRnMN545tvsZZMjy_SXSlXowaRpTenPFbMndPuc0sYcTAtnDXZnhveBLYa3eiOWH_Ij4EtC1Skv538W8TfViJWjkoLJnu87fhOzzbCrXEl?1dcmKJswd-D2uluj5Yw2ID1RYbnhaUIvpdfBO_-krIdYVfwFqrqAOnKXRzOXX_dgn-zqdr70EfsB6p4MtrzRGO26oz_v-b83zDOT-k4JxLY6ueibY). Then fill in the table below.

The null hypothesis Ho is:

The alternative hypothesis H1 is:

The type of test statistic (and degree of freedom, if applicable) is:

The value of the test statistic (round to at least 3 decimal places):

The 2 critical values at the 0.10 level of significance (round to at least 3 places)is:

Based on the information, can we conclude (using the 0.10 level) that there is a significant linear relationship between house price and distance from the beach in Newburg Park?