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| Does the “path” that baseball players use to “round” first base make much of a difference – specifically, it is better to take a “narrow angle” or a “wide angle” (both illustrated in the figure to the right)? In 1970, a student investigated this question as part of his Master’s thesis. He had 22 baseball players run the bases using both methods (the order in which the players ran the “narrow” and “wide” angle paths was randomized, and each runner had a rest period between their two trials). The running times, in seconds, were recorded for each trial.  Plots of the data and summary statistics are provided below. | |  |
|  | | |  |  |  |  | | --- | --- | --- | --- | |  | Mean | Std. Dev. |  | | Narrow Angle | 5.534 | 0.2598 | 22 | | Wide Angle | 5.457 | 0.2731 | 22 | | Difference (Narrow – Wide) | 0.077 | 0.0841 | 22 | | |

1. What type of problem is this?
2. Is there evidence of difference in running times for the two methods? Include all details of the appropriate hypothesis test.
3. Construct a 95% confidence interval for the average difference/change in speed for the two running paths.