

Consider the following statements that were published in an article by the NY Times regarding minority coaches in the Major League Baseball.

“Among baseball’s 30 teams, only 7 of the third-base coaches are members of minorities, compared with 20 of its first-base coaches. The disparity has existed for decades but it appears the gap is widening based on an analysis by The New York Times. The question is why.



It is more than a mysterious quirk: the third-base coaching position carries greater prestige, the pay is better and the position is often a steppingstone to a managerial job. “

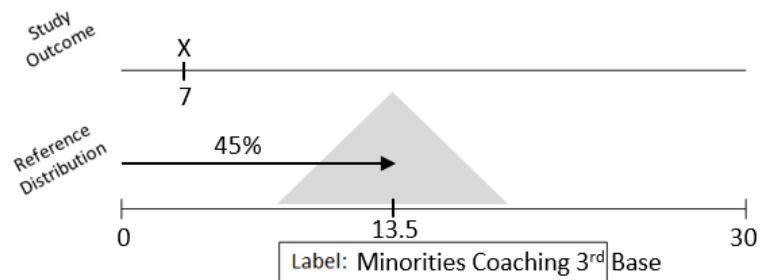
### Additional Information

In Major League Baseball, 45% of the coaches are minority which is slightly above the minority rate for players. This investigation is not centered on whether or not minorities are given a fair chance to coach, but whether or not minorities are given a fair chance to coach 3<sup>rd</sup> base. There are a total of 30 3<sup>rd</sup> base coaches in Major League Baseball.

Research Question: Does the data presented by the NY Times statistical suggest that minority coaches are not given a fair opportunity to coach 3<sup>rd</sup> base?

1. Identify the appropriate setup for this investigation. (5 pts)

- Smallest possible value
- Largest possible value
- Label for number line
- Location of pyramid
- Outcome from study



2. Identify the following simulation parameters for your investigation. (3 pts)

**Edit data** ✕

Please select values for count and sample size.

count:

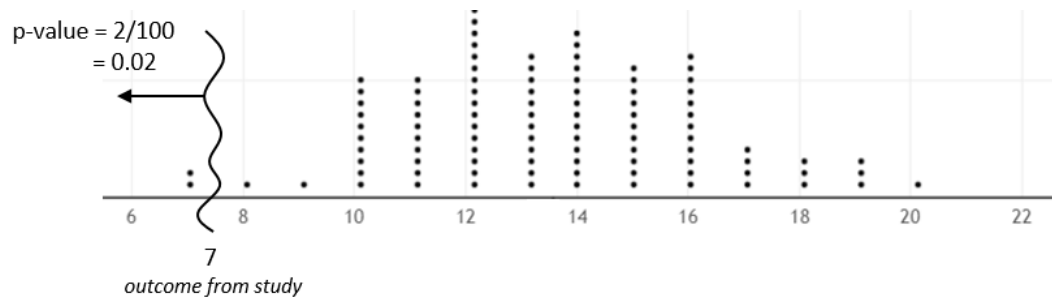
sample size:

**Define Null Hypothesis** ✕

Enter the null hypothesis as a decimal between 0.0 and 1.0.

Null Hypothesis

I used StatKey to obtain the following reference distribution. For simplicity, I ran 100 repeated iterations for this investigation here.



3. What type of test is this? (1 pt)

LEFT-TAILED | RIGHT-TAILED | TWO-TAILED

4. Compute the appropriate p-value for this investigation. Show your calculation here. (3 pts)

$$\begin{aligned} \text{P-Value: } & \frac{\# \text{ dots as extreme or more extreme than study outcome}}{\# \text{ dots}} \\ & = \frac{2}{100} = 0.02 \end{aligned}$$

5. Decision: Check one. (1 pt)

Is the p-value < 0.05? If yes, then data is said to support the research question.

Data provides enough evidence for the research question  
 Data does not provide enough evidence for the research question

6. Write an appropriate conclusion for this investigation. (4 pts)

There is enough statistical evidence to say that that minority coaches are not given a fair opportunity to coach 3rd base (p-value = 0.02).

7. Discuss the scope-of-inference for this problem. That is, for whom does the conclusion written above apply? (3 pts)

The scope-of-inference would be minority coaches in Major League Baseball. The scope-of-inference extends beyond the 30 coaches for which this analysis is based on.