Reflect on the Question | Analyze the Data | Draw Conclusions

Primary Research Question

The average American adult man weighs 190 pounds. Do professional bull riders weigh the same?

Breakdown Your Analysis

Let's break this analysis into its required steps:

1. Calculate the sample mean and standard deviation for the weight of the bull-riders.
2. Create a histogram to visualize the distribution of bull-riders' weights.
3. Confirm the assumptions of a one-sample t-test
4. Run the t-test and interpret the results.

Here is the code you will use:

```
# Summarize the bull rider weights
```

```
mean(bull$Weight)
sd(bull$Weight)

# Visualize the weight distribution
hist(bull$Weight, main='Histogram of Bull Rider Weights',xlab='Weight (lbs)')

# Run the single sample t-test
t.test(bull$Weight, mu=190)
```

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(1 point possible)

1. What type of **graph** are we going to use to visualize the weights of the bull-riders?

- histogram ✔
- scatterplot
- boxplot

CORRECT. THE HISTOGRAM IS THE BEST WAY TO ASCERTAIN BY EYE WHETHER THE DISTRIBUTION IS APPOXIMATELY NORMAL IN THIS CASE.

Hide Answer *You have used 0 of 2 submissions*

(1 point possible)

2. What portion of the code defines the value of the null hypothesis?

- mu=190 ✔
- mean(bull$Weight)
- t.test

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CORRECT. "MU" IS THE ENGLISH SPELLING OF THE GREEK CHARACTER μ, WHICH REPRESENTS THE POPULATION MEAN. OUR NULL HYPOTHESIS IS μ=190.

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(1 point possible)

3. Which **assumption** can we confirm with the use of the following line of code:

```
hist(bull$Weight, main='Histogram of Bull Rider Weights',xlab='Weight (lbs)')
```

- random sample
- Normality ✔
- linearity
- independent observations

CORRECT. AN ASSUMPTION OF THE T-TEST IS THAT THE DISTRIBUTION IS ROUGHLY NORMAL, AND THE HISTOGRAM ALLOWS US TO ASSESS THIS CONDITION BY EYE.

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(1 point possible)

4. If you wanted to calculate the **standard error** for this sample of 38 riders, what additional line of code would you need to add?

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- mean(bull$Weight)/sqrt(38)
- sd(bull$Weight)/sqrt(38) ✔
- SE <- t.test(bull$Weight)

CORRECT. THE STANDARD ERROR IS EQUAL TO $s/\sqrt{n}$. s IS THE STANDARD DEVIATION OF OUR SAMPLE.

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