Name: Student 2 ID:

Election Predictions

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The website FiveThirtyEight.com uses statistical models and polling data to predict the outcomes of national and state-level elections. In 2018, 538 predicted the results of 506 elections (435 House, 35 Senate, and 36 Governors). The Lite forecast, which considers only local and national polls, correctly predicted the outcome of 482 of the 506 elections (95.26%). Each race is identified as a toss-up, lean, likely, or solid district, reflecting the degree of certainty of the prediction.

Nate Silver would like to determine whether his predictions using the Lite model are significantly better than the expected success rate, 0.69. Of the 38 classified as 'Lean' races, FiveThirtyEight.com correctly predicted the outcome of 32 races.

1. What is the research question? [1pt]
   If Nate's predictions are better than the expected success rate

2. What is the observational unit? [1pt]
   1 lean race

3. What is the parameter? [1pt]
   $\sqrt{\frac{\pi(1-\pi)}{n}}$ $\sqrt{\frac{.69(1-.69)}{38}} = \sqrt{\frac{0.2139}{38}} \approx 0.075$

4. Calculate the sample statistic [1pt]
   0.08

5. What is H_0? [1pt]
   $H_0 = \pi = 0.69$

6. What is H_A? [1pt]
   $H_a = \pi > 0.69$

7. What type of hypothesis test is this? Circle all that are correct: [.5pt each]

   (one-sided) two-sided random