Data Analysis and Statistical Inference
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In-Video Quiz Questions for
Unit 3: Part 3 – (2) Hypothesis Testing (for a mean)

(03:11) – slide 3, after "We would never hypothesize about X bar in a hypothesis test, but we might hypothesize about Mu because we don't know what Mu is versus we know exactly what X bar is."

1. A study suggests that the average college student spends 2 hours per week communicating with others online. You believe that this is an underestimate and decide to collect your own sample for a hypothesis test. You randomly sample 60 students from your dorm and find that on average they spent 3.5 hours a week communicating with others online. What are the appropriate hypotheses?

(a) $H_0: \bar{x} = 2$ hours/week; $H_A: \bar{x} > 2$ hours/week
(b) $H_0: \bar{x} = 2$ hours/week; $H_A: \bar{x} > 3.5$ hours/week
(c) $H_0: \mu = 2\ \text{hours}/\textit{week};\ H_A: \mu > 2$ hours/week
(d) $H_0: \mu = 2$ hours/week; $H_A: \mu > 3.5$ hours/week
(e) $H_0: \bar{x} = 3.5$ hours/week; $H_A: \bar{x} > 3.5$ hours/week

(10:15) – slide 10, after "Which comes out to be just twice what we have in one tail. Roughly 41.8%."

2. Since 2008, chain restaurants in California have been required to display calorie counts of each menu item. Prior to menus displaying calorie counts, the average calorie intake of diners at a restaurant was 1100 calories. After calorie counts started to be displayed on menus, a nutritionist collected data on the number of calories consumed at this restaurant from a random sample of diners. Do these data provide convincing evidence of a difference in the average calorie intake of a diners at this restaurant?

(a) $H_0: \bar{x} = 1100$ calories; $H_A: \bar{x} \neq 1100$ calories
(b) $H_0: \bar{x} = 1100$ calories; $H_A: \bar{x} < 1100$ calories
(c) $H_0: \mu = 1100$ calories; $H_A: \mu \neq 1100$ calories
(d) $H_0: \mu < 1100$ calories; $H_A: \mu > 1100$ calories

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Answers:

1. c
2. c