

- Exactly 60 percent of a random sample of 250 students at George's college believe that students in fraternities and sororities drink more than others. Should George bet that exactly 60 percent of the student population hold the same belief?
- Should he bet that at least 60 percent hold the belief?
- Should he bet that no more than 66 percent hold the belief?
- According to the text, the largest number that he can safely bet hold the belief mentioned is _____ percent.
- Let's change the story a bit. Let's make the sample size 100 and once again say that exactly 60 percent of it hold the belief in question. Should George bet that at least 55 percent of the total student population hold the belief?
- Should he bet that at least 50 percent of the total hold it?
- It is safe for George to bet that no more than _____ percent of the total population share the belief in question. What's the smallest number that can be placed in the blank?

Exercise 11-19

Read the passage below, and answer the questions that follow.

In the Sunrise University History Department, students are invited to submit written evaluations of their instructors to the department's personnel committee, which uses those evaluations to help determine whether history instructors should be recommended for retention and promotion. In his three history classes, Professor Ludlum has a total of one hundred students. Six students turned in written evaluations of Professor Ludlum, four of these evaluations were negative, and two were positive. Professor Hitchcock, who sits on the History Department Personnel Committee, argued against recommending Ludlum for promotion. "If a majority of the students who bothered to evaluate Ludlum find him lacking," he stated, "then it's clear to me that a majority of all his students find him lacking."

- What is the sample in Professor Hitchcock's reasoning?
- What is the target?
- What is the property in question?
- Is this an analogical argument or a generalization?
- Are there possibly important differences between the sample and the target that should reduce our confidence in Professor Hitchcock's conclusion?
- Does Professor Hitchcock have any information concerning the diversification of the sample?
- Is the sample random?
- How about the size of Professor Hitchcock's sample? Is it large enough to help ensure that the sample and target classes won't be too dissimilar?

Based on the analysis of Professor Hitchcock's reasoning that you have just completed in the foregoing questions, how strong is his reasoning?

Exercise 11-20

Identify any fallacies that are present in the following passages:

- From a letter to the editor: "I read with great interest the May 23 article on the study of atheists in federal prisons, according to which most of these atheists identify themselves as socialists, communists, or anarchists. That most atheists, along with all their other shortcomings, turn out to be political wackos surprises yours truly not one bit."
- I ordered a packet of seeds from Hansen Seed Company last year, and only half of them germinated. I'll bet you get only half the plants you're expecting from the order you just sent them.
- My cousin has a Dodge truck that he drives around on the ranch and back and forth to town as well. It now has 120,000 miles on it without any major overhaul. I've started to believe the commercials: Dodge does build tough trucks!
- Drug abuse among professional athletes is a serious and widespread problem. Three players from a single team admitted last week that they had used cocaine.
- Most Americans favor a national lottery to reduce the federal debt. In a poll taken in Las Vegas, more than 80 percent said they favored such a lottery.
- I think collies are one of the easiest breeds of dog to train. I had one when I was young, and she was really easy to teach. Of course, if you need more evidence, there's Lassie.
- Wow! I just got one of those CD-ROM readers for my computer setup at home. It's incredible how much information those things can hold. The first CD-ROM disk I got has an entire encyclopedia on it.
- From a letter to the editor: "Last week, members of the Animal Liberation Front stole several hours of videotapes of experiments done to animals at the University of Pennsylvania's Head Injury Clinical Research Center. According to reliable reports, one of the tapes shows baboons having their brains damaged by a piston device that smashed into their skulls with incredible force. The anesthetic given the baboons was allegedly insufficient to prevent serious pain. Given that this is what animal research is all about, Secretary of Health and Human Services Margaret Heckler acted quite properly in halting federal funding for the project. Federal funding for animal research ought to be halted, it seems to me, in the light of these atrocities."
- FIRST PERSON: I don't get out of my way to get a suntan anymore. There's just too much evidence that you can pay for it in the long run with skin cancer. SECOND PERSON: My father worked outdoors most of his life, and he doesn't have skin cancer. I think this stuff about suntans being dangerous is just some fad.