Statistics 201: Introduction to Statistics
Independent Samples or Matched Pairs Design Homework
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Tell in each of the following instances whether the study uses an independent samples or a matched pairs design.

(a) Two computing algorithms are compared in terms of the CPU times required to do the same six test problems.

(b) A survey is conducted of teens from inner city schools and suburban schools to compare the proportion who have tried drugs.

(c) A psychologist measures the response times of subjects under two stimuli; each subject is observed under both the stimuli in a random order

(d) An agronomist compares the yields of two varieties of soybean by planting each variety in 10 separate plots of land (a total of 20 plots).

(e) Military test pilots who had at least one accident are matched by length of experience to pilots without accidents. The two groups are then surveyed about the number of childhood accidents to determine if the former group of pilots is "accident prone."

(f) Lung cancer patients admitted in a hospital over a 12 month period are each matched with a non-cancer patient by age, sex, and race. To determine whether or not smoking is a risk factor for lung cancer, it is noted for each patient if he or she is a smoker.

(g) A survey is conducted of college bound and non-college bound high school seniors to compare the proportion who have at least one parent who attended college.

(h) An advertising agency has come up with two different TV commercials for a household detergent. To determine which one is more effective, a test is conducted in which a sample of 100 adults is randomly divided into two groups. Each group is shown a different commercial, and the people in the group are asked to score the commercial.