15. Clinical Trial of Echinacea In a clinical trial of the effectiveness of echinacea for preventing colds, the results in the table below were obtained (based on data from "An Evaluation of *Echinacea Angustifolia* in Experimental Rhinovirus Infections," by Turner et al., *New England Journal of Medicine,* Vol. 353, No. 4). Use a 0.05 significance level to test the claim that getting a cold is independent of the treatment group. What do the results suggest about the effectiveness of echinacea as a prevention against colds?

	Treatment Group		
	Placebo	Echinacea: 20% extract	Echinacea: 60% extract
Got a Cold	88	48	42
Did Not Get a Cold	15	4	10

16. Injuries and Motorcycle Helmet Color A case-control (or retrospective) study was conducted to investigate a relationship between the colors of helmets worn by motorcycle drivers and whether they are injured or killed in a crash. Results are given in the table below (based on data from "Motorcycle Rider Conspicuity and Crash Related Injury: Case-Control Study," by Wells et al., *BMJ USA*, Vol. 4). Test the claim that injuries are independent of helmet color. Should motorcycle drivers choose helmets with a particular color? If so, which color appears best?

	Color of Helmet				
	Black	White	Yellow/Orange	Red	Blue
Controls (not injured)	491	377	31	170	55
Cases (injured or killed)	213	112	8	70	26

17. Survey Refusals A study of people who refused to answer survey questions provided the randomly selected sample data shown in the table below (based on data from "I Hear You Knocking But You Can't Come In," by Fitzgerald and Fuller, *Sociological Methods and Research,* Vol. 11, No. 1). At the 0.01 significance level, test the claim that the cooperation of the subject (response or refusal) is independent of the age category. Does any particular age group appear to be particularly uncooperative?

	Age					
	18–21	22–29	30–39	40–49	50–59	60 and over
Responded	73	255	245	136	138	202
Refused	11	20	33	16	27	49

18. Baseball Player Births In his book *Outliers,* author Malcolm Gladwell argues that more American-born baseball players have birthdates in the months immediately following July 31 because that was the cutoff date for nonschool baseball leagues. The table below lists months of births for a sample of American-born baseball players and foreign-born baseball players. Using a 0.05 significance level, is there sufficient evidence to warrant rejection of the claim that months of births of baseball players are independent of whether they are born in America? Do the data appear to support Gladwell's claim?

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Born in America	387	329	366	344	336	313	313	503	421	434	398	371
Foreign Born	101	82	85	82	94	83	59	91	70	100	103	82