Example A nationwide US telephone survey conducted by the Pew Foundation asked 2625 adults ages 18 and older, "Some people say there is only one true love for each person. Do you agree or disagree?" The table below gives the answer to this question as a function of the person's education level, categorized as HS (high school degree or less), Some (some college), or College (college graduate or higher).

	HS	Some	College	Total
Agree	363	176	196	735
Disagree	557	466	789	1812
Don't Know	20	26	32	78
Total	940	668	1017	2625

(1) Is the level of a person's education related to how the person feels about one true love? If a significant association exists, describe how they are related. Calculate both the χ^2 and G^2 statistics.

> TrueLove <− matrix(c(363,176,196,557,466,789,20,26,32), ncol=3, byrow=TRUE)

> chisq.test(TrueLove, correct = F)

(2) Compute standardized residuals for cells.

> stdres <− chisq.test(TrueLove)$stdres

(3) Find the odds ratio for a High School person agreeing with the statement compared to College agreeing with the statement.

Example Is Cell Shape Associated with Malignancy?

Fine needle aspiration (FNA) is a technique in which a small sample of the tumor is taken using a needle and visually inspected through a microscope. The data below represent 37 FNA slide samples. Slides with smooth ellipsoid-shaped nuclei were classified as "round" and slides with poorly shaped cell nuclei were classified as "concave." A biopsy was also conducted on each of these samples to determine if each was malignant or benign.

	Malignant	Benign	Total
Concave	17	4	21
Round	7	9	16
Total	24	13	37

Are misshapen (i.e. concave) cells more likely to be malignant?

Example In Costa Rica, the vampire bat *Desmodus rotundus* feeds on the blood of domestic cattle. If the bats respond to a hormonal signal, cows in estrous (in heat) may be bitten with a different probability than cows not in estrous. (The researcher could tell the difference by harnessing painted sponges to the undersides of bulls who would leave their mark during the night.

	In estrous	Not in estrous	Total
Bitten by a bat	15	6	21
Not bitten by a bat	7	322	329
Total	22	328	350

Is there sufficient evidence to conclude that the probability a cow in estrous will be bitten by a vampire bat is larger than that for a cow not in estrous?