Unit #3 – Exercises

Reader's Digest conducted a study to find out how honest people are in different cities. Three cities of each type were selected: big cities, suburbs, medium cities, and small cities. In each selected city, 10 wallets were left in public places. Each wallet contained $50 cash, a telephone number, and an address where the owner could be reached. A record was kept of the number of wallets returned.

	Returned	Kept Wallet	Total
Big Cities	21	9	30
Suburbs	18	12	30
Medium Cities	17	13	30
Small Cities	24	6	30
Total	80	40	120

1. State your hypotheses and test for significant differences among the percentages of people who returned wallets in different types of cities.

2. Use the following data to test the hypothesis that a horse's chances of winning are unaffected by its position on the starting lineup. The data give the starting position of each of 144 winners, where position 1 is the closest to the inside rail of the racetrack.

Starting Position	1	2	3	4	5	6	7	8
# of wins	29	19	18	25	17	10	15	11

3. The drug Dramamine was tested for its effectiveness to prevent airsickness compared to a placebo. A total of 216 volunteers were randomly assigned to receive either the drug or the placebo. Of the 108 volunteers receiving treatment, 31 became airsick; of the 108 volunteers receiving the placebo, 60 became airsick. Create a contingency table to display these results and test whether Dramamine is effective in reducing the chances of airsickness.

4. Use the following data to test whether preferences for different formulations of a soft drink change with age.

	Formulation 1	Formulation 2	Formulation 3
Age 10-25	69	75	56
Age 26-50	82	64	54
Age 51 and over	74	84	42

5. Market researchers know that background music can influence the mood and purchasing behavior of customers. One study in a supermarket in Northern Ireland compared three treatments: no music, French accordian music, and Italian string music. Under each condition, the researchers recorded the numbers of bottles of French, Italian, and other wine purchased. Here is a summary of the data:

		Music			Total
		None	French	Italian	
Wine	French	30	39	30	99
	Italian	11	1	19	31
	Other	43	35	35	113
	Total	84	75	84	243