AP Stats
Chap 2 Review

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

1. The Centers for Disease Control lists causes of death for individual states in 2002. The mortality data for one state is given.

1. _____

Cause of Death	Percent
Heart Disease	28.1
Cancer	23.1
Circulatory diseases and stroke	7.4
Respiratory diseases	5.2
Accidents	4.7

Is it reasonable to conclude that, in this state, cancer or respiratory diseases were the cause of approximately 28% of deaths in 2002?
   A. No, because these categories overlap.
   B. Yes, because the percentages can always be added in relative frequency tables.
   C. No, because the percentages do not add up to 100%.
   D. No, because the percentages in relative frequencies tables can never be added.
   E. Yes, because these categories do not overlap.

2. The Centers for Disease Control lists causes of death for individual states in 2002. The mortality data for one state is given.

2. _____

Cause of Death	Percent
Heart Disease	29.6
Cancer	22.3
Circulatory diseases and stroke	8.1
Respiratory diseases	6.3
Accidents	4.4

In this state, what percent of deaths were from causes not listed here?
   A. 33.7%
   B. 29.3%
   C. 58.9%
   D. 70.7%
   E. The percent cannot be determined from the given percentages because the categories overlap.

3. The Centers for Disease Control lists causes of death for individual states in 2002. The mortality data for one state is given.
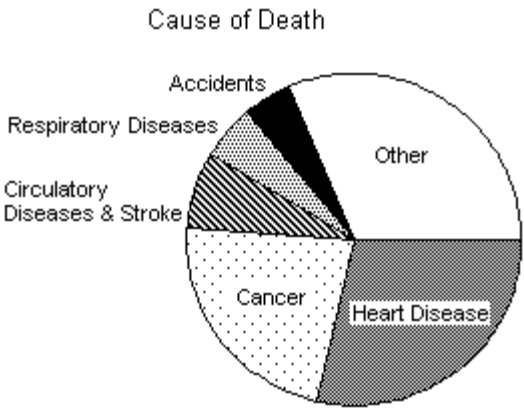
3. _____

Cause of Death	Percent
Heart Disease	28.8
Cancer	22.9
Circulatory diseases and stroke	7.1
Respiratory diseases	5.9
Accidents	4.7

Which of the following displays is/are appropriate for these data? (More than one display may be appropriate.)
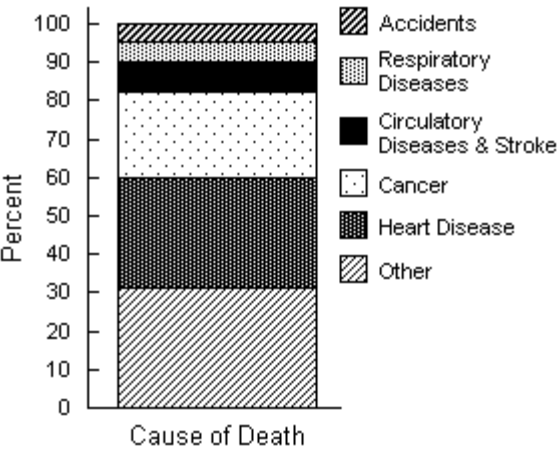
I

II

Cause of Death
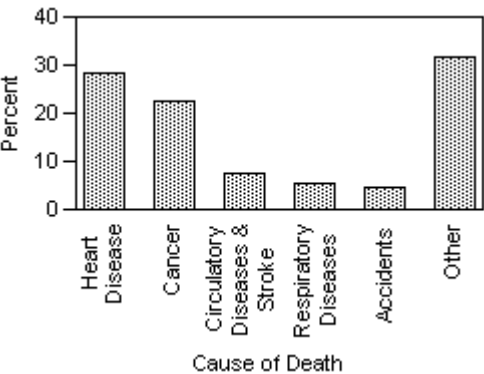
III

A. II, III
B. I
C. I, II
D. I, II, III
E. None of these displays are appropriate.

4. A local park district is planning to build a recreation center. The park district conducted a poll to find out the types of physical activities the local population would be interested in. The poll was based on telephone responses from 1013 randomly selected adults. The table shows the percentages of people who expressed interest in various activities.

Activity	Percent
Running/Walking	54
Weight Training	48
Biking	32
Aerobics	25
Swimming	13

Which of the following displays is/are appropriate for these data? (More than one display may be appropriate.)

I

II

III
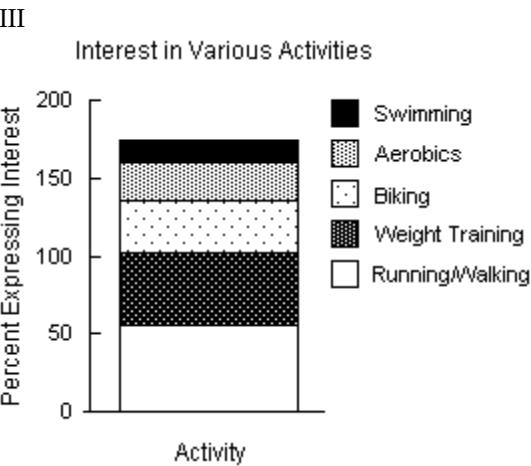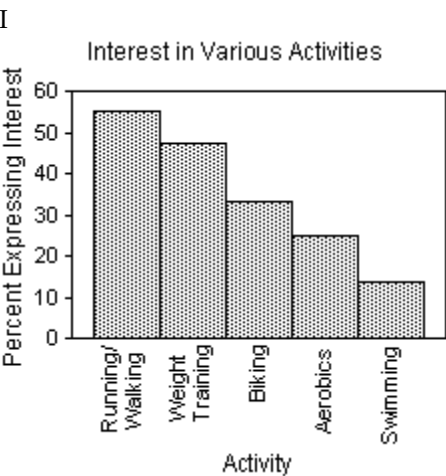
A. II
B. I, II
C. I, II, III
D. I
E. None of these displays are appropriate.

Provide an appropriate response. Round to the nearest tenth of a percent if necessary.

5. Students in a political science course were asked to describe their politics as "Liberal", "Moderate", or "Conservative." Here are the results:

5. _____

Politics

	Liberal	Moderate	Conservative	Total
Female	28	31	11	70
Male	53	41	20	114
Total	81	72	31	184

Sex (row label)

What percent of the class considers themselves to be "Liberal"?
   A. 78.6%   B. 28.8%   C. 44%   D. 15.2%   E. 40%

6. A magazine article reported on Springfield School District's magnet school programs. The article examined the impact of an applicant's ethnicity on the likelihood of admission. The data are summarized in the table below.

6. _____

Admission Decision

	Accepted	Wait–listed	Turned away	Total
Black/Hispanic	455	0	30	485
Asian	106	45	145	296
White	324	245	351	920
Total	885	290	526	1701

Ethnicity (row label)

What percent of all applicants were Black or Hispanic?
   A. 17.4%   B. 28.5%   C. 48.5%   D. 54.8%   E. 26.7%

7. Just how accurate are the weather forecasts we hear every day? The table below compares the daily forecast with a city's actual weather for a year.

7. _____

Actual Weather

	Rain	No rain
Rain	23	53
No rain	7	282

Forecast (row label)

On what percent of days did it actually rain?
   A. 8.2%   B. 1.9%   C. 76.7%   D. 6.3%   E. 20.8%

8. A survey of autos parked in student and staff lots at a large university classified the brands by country of origin, as seen in the table.

8. _____

Driver

Origin	Student	Staff
American	108	85
European	38	22
Asian	69	58

What percent of all the cars surveyed were foreign?

    A. 49.2%   B. 28.2%   C. 33.4%   D. 21.1%   E. 15.8%

Provide an appropriate response. Round to the nearest percent if necessary.

9. A survey of autos parked in student and staff lots at a large university classified the brands by country of origin, as seen in the table.

9. _____

Driver

Origin	Student	Staff
American	106	88
European	39	23
Asian	70	65

What is the marginal distribution of origin?

    A. 49% American, 18% European, 33% Asian
    B. 50% American, 16% European, 35% Asian
    C. 50% American, 13% European, 37% Asian
    D. 55% Students, 45% Staff
    E. 98% American, 19% European, 53% Asian

10. A company held a blood pressure screening clinic for its employees. The results are summarized in the table below by age group and blood pressure level.

10. _____

Age

| Blood Pressure	Under 30	30–49	Over 50
Low	27	38	31
Normal	48	90	92
High	23	59	72

Find the marginal distribution of blood pressure level.

    A. 20% low, 39% normal, 41% high
    B. 20% low, 48% normal, 32% high
    C. 20% under 30, 39% between 30–49, 41% over 50
    D. 28% low, 49% normal, 23% high
    E. 25% low, 92% normal, 47% high

Provide an appropriate response.

11. At a local university, the incoming freshman were surveyed about their chosen majors. The university organized the data by placing the majors into the appropriate colleges. The table displays the results for males and females by colleges. A graphical display of the conditional distributions of colleges by gender is given.

Gender

College	Male	Female
College of Liberal Arts and Sciences	1809	1918
College of Business	905	804
College of Education	312	247
College of Visual and Performing Arts	94	124

Distribution of Colleges by Gender
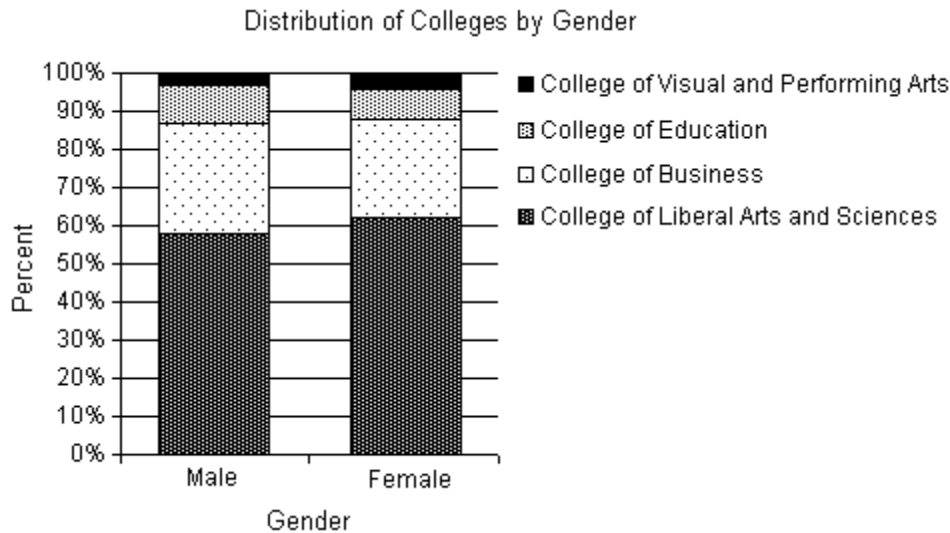
Do you think that the college the freshmen will be entering is independent of the gender of the student? Explain.

A. No. The conditional distributions of colleges by gender varies. More male students will be entering the College of Business and the College of Education than female students. This is sufficient evidence of an association between gender and colleges.

B. Yes. The conditional distributions of colleges by gender are similar. Since the distributions of colleges is essentially the same for males and females, there is evidence of an association between gender and colleges.

C. No. The conditional distributions of colleges by gender are similar. Since the distributions of colleges is essentially the same for males and females, there is evidence of an association between gender and colleges.

D. No. The conditional distributions of colleges by gender are similar. Since the distributions of colleges is essentially the same for males and females, there is no evidence of an association between gender and colleges.

E. Yes. The conditional distributions of colleges by gender are similar. Since the distributions of colleges is essentially the same for males and females, there is no evidence of an association between gender and colleges.

12. The table compares what Plainfield College students did after graduating with a bachelor's degree in 1992, 1998, and 2003. A graphical display of the conditional distributions of what students did after graduation by year is given.

12. _____

	Year		
	1992	1998	2003
Continuing education	436	582	772
Employed	679	758	801
In the military	78	60	51
Other	52	92	87

(Plans)

Distribution of Post Graduation Plans by Year
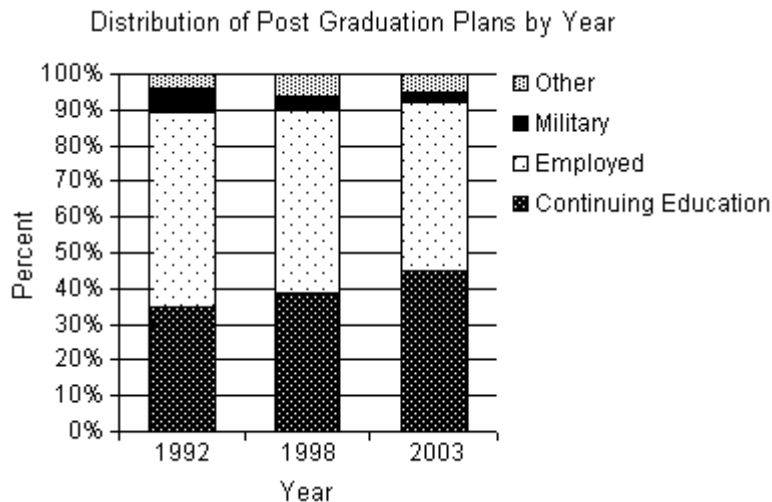
Does this study present any evidence that postgraduation plans have changed over this 11–year period? Explain.

A. No. The percentage of Plainfield College graduates continuing their education has increased from 1992 to 2003. Likewise, the percentage of graduates entering the work force directly after receiving a bachelor's degree appears to have decreased from 1992 to 2003. However, this is not sufficient evidence to show any change due to the fact that those entering the military or seeking other options remained relatively constant.

B. Yes. There is evidence that the percentage of Plainfield College graduates continuing their education and entering the work force directly after receiving a bachelor's degree has increased from 1992 to 2003.

C. Yes. There is evidence that the percentage of Plainfield College graduates continuing their education has increased from 1992 to 2003. Likewise, the percentage of graduates entering the work force directly after receiving a bachelor's degree appears to have decreased from 1992 to 2003.

D. No. The percentage of Plainfield College graduates continuing their education has increased from 1992 to 2003. Likewise, the percentage of graduates entering the work force directly after receiving a bachelor's degree appears to have decreased from 1992 to 2003. However, this is not sufficient evidence to show any change due to the fact that the number of students graduating has increased over this same time period.

E. Yes. There is evidence that the percentage of Plainfield College graduates entering the work force directly after receiving a bachelor's degree has increased from 1992 to 2003. Likewise, the percentage of graduates continuing their education appears to have decreased from 1992 to 2003.

13. A company must decide which of two delivery services they will contract with. During a recent   13. _____
trial period they shipped numerous packages with each service, and have kept track of how often
deliveries did not arrive on time. Here are the data:

Delivery service	Type of service	Number of deliveries	Number of late packages
Super Ship	Regular	200	4
	Overnight	500	50
Fast Paks	Regular	500	15
	Overnight	200	32

Based on the results, the company decided to hire Fast Paks. Do you agree they deliver on time
more often? Explain.

    A. Yes. Fast Paks only delivers 2% of its regular packages late, compared to Super Ship, who
deliver 3% of its regular packages late. Additionally, Fast Paks only delivers 10% of its
overnight packages late, compared to Super Ship, who delivers 16% of its overnight packages
late. Fast Paks is better at delivering regular and overnight packages.

    B. No. Super Ship only delivers 2% of its regular packages late, compared to Fast Paks, who
deliver 3% of its regular packages late. Additionally, Super Ship only delivers 10% of its
overnight packages late, compared to Fast Paks, who delivers 16% of its overnight packages
late. Super Ship is better at delivering regular and overnight packages.

    C. No. Fast Paks only delivers 0.08% of its packages late, compared to Super Ship, who delivers
0.07% of its packages late. Super Ship is better at delivering regular and overnight packages.

    D. Yes. Fast Paks only delivers 0.07% of its packages late, compared to Super Ship, who delivers
0.08% of its packages late. Fast Paks is better at delivering regular and overnight packages.

    E. No. This is an example of Simpson's paradox and unfair averaging. Since the overall
percentages and the individual percentages disagree on which delivery service is better, both
services can be considered equal. It cannot be determined whether Super Ship or Fast Paks
deliver packages on time more often.

1. E
2. B
3. D
4. E
5. C
6. B
7. A
8. A
9. B
10. B
11. E
12. C
13. B