

AP Statistics

Chapter 3 Part 1 Class Problems Worksheet

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.

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	
Sex	Female	28	31	11	70
	Male	53	41	20	114
	Total	81	72	31	184

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	
Ethnicity	Black/Hispanic	455	0	30	485
	Asian	106	45	145	296
	White	324	245	351	920
	Total	885	290	526	1701

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	
Forecast	Rain	23	53
	No rain	7	282

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	
		Student	Staff
Origin	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	
		Student	Staff
Origin	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		
		Under 30	30-49	Over 50
Blood Pressure	Low	27	38	31
	Normal	48	90	92
	High	23	59	72

Find the marginal distribution of blood pressure level.

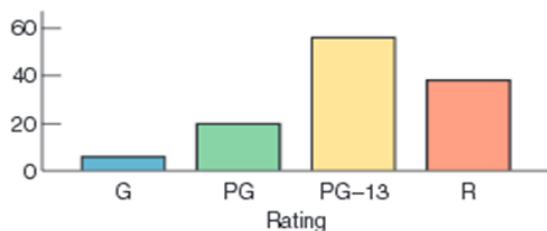
- A. 20% low, 39% normal, 41% high
 B. 20% low, 48% normal, 32% high
 C. 20% under 30, 39% between 30-49, 41% over 50
 D. 28% low, 49% normal, 23% high
 E. 25% low, 92% normal, 47% high

Free response Questions

6. **Movie ratings.** The pie chart shows the ratings assigned to 120 first-run movies released in 2005.
- Is this an appropriate display for these data? Explain.
 - Which was the most common rating?



8. **Ratings again.** Here is a bar chart summarizing the 2005 movie ratings, as seen in the pie chart in Exercise 6.
- Which was the least common rating?
 - An editorial claimed that there's been a growth in PG-13 rated films that, according to the writer, "have too much sex and violence," at the expense of G-rated films that offer "good, clean fun." The writer offered the bar chart below as evidence to support his claim. Does the bar chart support his claim? Explain.



10. **Magnet schools again.** The *Chance* article about the Houston magnet schools program described in Exercise 9 also indicated that 517 applicants were black or Hispanic, 292 Asian, and 946 white. Summarize the relative frequency distribution of ethnicity with a sentence or two (in the proper context, of course).

12. **Plane crashes.** An investigation compiled information about recent nonmilitary plane crashes (www.planecrashinfo.com). The causes, to the extent that they could be determined, are summarized in the table.

Cause	Percent
Pilot error	40
Other human error	5
Weather	6
Mechanical failure	14
Sabotage	6

- Is it reasonable to conclude that the weather or mechanical failures caused only about 20% of recent plane crashes?
- In what percent of crashes were the causes not determined?
- Create an appropriate display for these data.