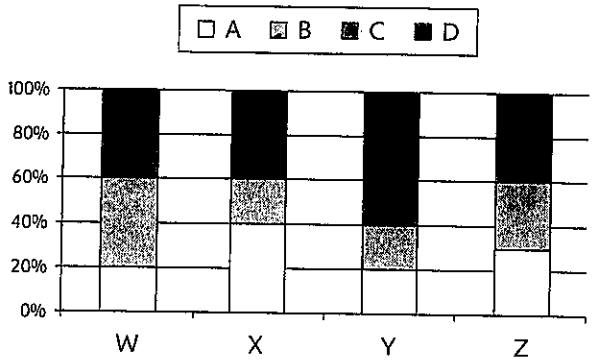
Name _____ Date _____

AP Statistics Period _____

Two-Way Table Review

Four departments in a company, A, B, C, and D, are responsible for sales of the four different products, W, X, Y, and Z, that the company sells. The following stacked bar chart shows the sales records of units sold by each of the four departments. During the reporting period represented by the chart, the company sold the same number of units of each of the four products.



1) What percent of product W was sold by Department B?
   a. 20%
   b. 40%
   c. 60%
   d. 80%
   e. 100%
2) Who sold the highest percentage of Product X?
   a. A
   b. B
   c. C
   d. D
   e. Can't be determined
3) Which Department sold the least number of total products?
   a. A
   b. B
   c. C
   d. D
   e. Can't be determined

Questions 1–5 are based on the following: To study the relationship between party affiliation and support for a balanced budget amendment, 500 registered voters were surveyed with the following results:

	For	Against	No opinion
Democrat	50	150	50
Republican	125	50	25
Independent	15	10	25

4) What percentage of those surveyed were Democrats?

(A) 10%
(B) 20%
(C) 30%
(D) 40%
(E) 50%

5) What percentage of those surveyed were for the amendment and were Republicans?

(A) 25%
(B) 38%
(C) 40%
(D) 62.5%
(E) 65.8%

6) What percentage of Independents had no opinion?

(A) 5%
(B) 10%
(C) 20%
(D) 25%
(E) 50%

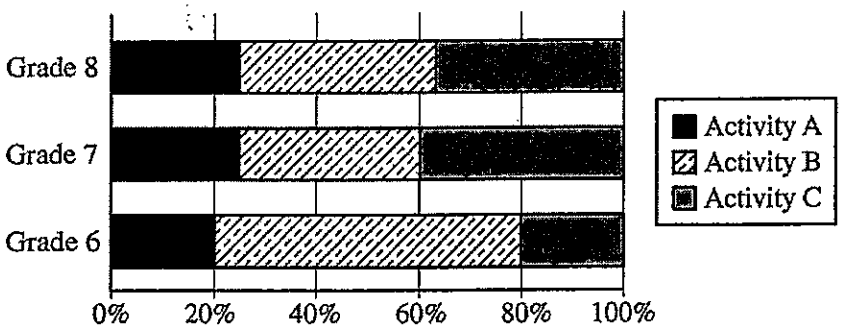
7) What percentage of those against the amendment were Democrats?

(A) 30%
(B) 42%
(C) 50%
(D) 60%
(E) 71.4%

8) Voters of which affiliation were most likely to have no opinion about the amendment?

(A) Democrat
(B) Republican
(C) Independent
(D) Republican and Independent, equally
(E) Democrat, Republican, and Independent, equally

9) As part of a community service program, students in three middle school grades (grade 6, grade 7, grade 8) each chose to participate in one of three school-sponsored volunteer activities. The graph below shows the distribution for each class for the three activities.



Based on the graph, which statement must be true?

(A) Of all the students who chose activity B, the greatest number of students were in grade 6.

(B) Grade 7 and grade 8 had the same number of students who did not choose activity A.

(C) The grade with the greatest percentage of students who chose activity C was grade 8.

(D) For students in grade 7, the number who chose activity C was greater than the number who chose activity B.

(E) For students in grade 8, the number who chose activity A was greater than the number who chose activity B.

10) As part of a study on the relationship between the use of tanning booths and the occurrence of skin cancer, researchers reviewed the medical records of 1,436 people. The table below summarizes tanning booth use for people in the study who did and did not have skin cancer.

	Used a Tanning Booth	Did Not Use a Tanning Booth	Total
Skin cancer	190	706	896
No skin cancer	75	465	540
Total	265	1,171	1,436

Of the people in the study who had skin cancer, what fraction used a tanning booth?

(A) $\frac{190}{265}$

(B) $\frac{190}{896}$

(C) $\frac{190}{1,436}$

(D) $\frac{265}{1,436}$

(E) $\frac{896}{1,436}$

11) A local company is interested in supporting environmentally friendly initiatives such as carpooling among employees. The company surveyed all of the 200 employees at the downtown offices. Employees responded as to whether or not they own a car and to the location of the home where they live. The results are shown in the table below.

		Location of Home			
		Downtown Area In the City	Elsewhere In the City	Outside the City	Total
Car Ownership	Yes	10	15	35	60
	No	60	55	25	140
	Total	70	70	60	200

Which of the following statements about a randomly chosen person from these 200 employees is true?

(A) If the person owns a car, he or she is more likely to live elsewhere in the city than to live in the downtown area in the city.

(B) If the person does not own a car, he or she is more likely to live outside the city than to live in the city (downtown area or elsewhere).

(C) The person is more likely to own a car if he or she lives in the city (downtown area or elsewhere) than if he or she lives outside the city.

(D) The person is more likely to live in the downtown area in the city than elsewhere in the city.

(E) The person is more likely to own a car than not to own a car.

Part II - Free Response

Directions: Show all your work. Indicate clearly the methods you use, because you will be graded on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

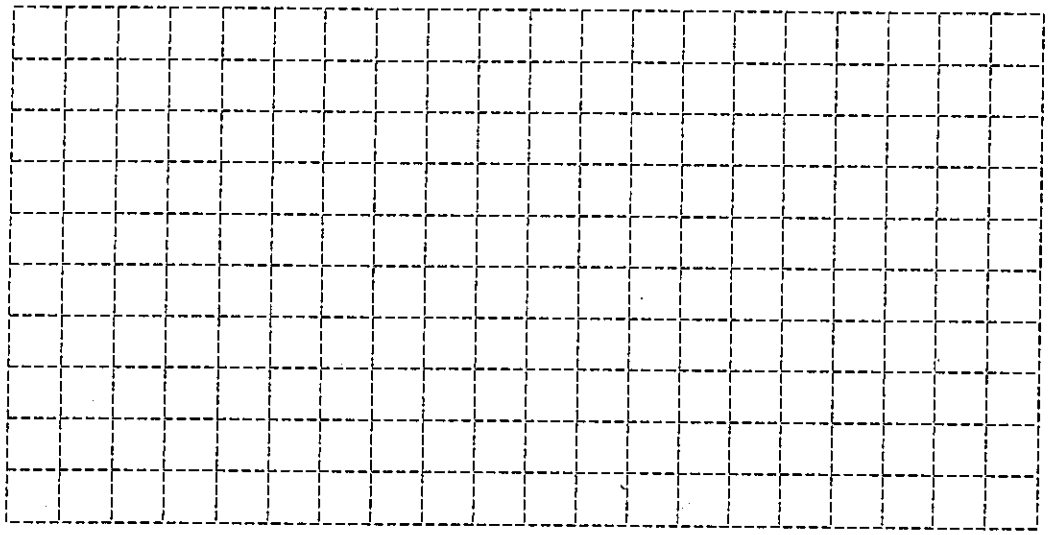
1. A simple random sample of 100 high school seniors was selected from a large school district. The gender of each student was recorded, and each student was asked the following questions.

1. Have you ever had a part-time job?
2. If you answered yes to the previous question, was your part-time job in the summer only?

The responses are summarized in the table below.

Job Experience	Gender		
	Male	Female	Total
Never had a part-time job	21	31	52
Had a part-time job during summer only	15	13	28
Had a part-time job but not only during summer	12	8	20
Total	48	52	100

(a) On the grid below, construct a graphical display that represents the association between gender and job experience for the students in the sample.



Directions: Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

2) Hurricane damage amounts, in millions of dollars per acre, were estimated from insurance records for major hurricanes for the past three decades. A stratified random sample of five locations (based on categories of distance from the coast) was selected from each of three coastal regions in the southeastern United States. The three regions were Gulf Coast (Alabama, Louisiana, Mississippi), Florida, and Lower Atlantic (Georgia, South Carolina, North Carolina). Damage amounts in millions of dollars per acre, adjusted for inflation, are shown in the table below.

HURRICANE DAMAGE AMOUNTS IN MILLIONS OF DOLLARS PER ACRE

	Distance from Coast				
	< 1 mile	1 to 2 miles	2 to 5 miles	5 to 10 miles	10 to 20 miles
Gulf Coast	24.7	21.0	12.0	7.3	1.7
Florida	35.1	31.7	20.7	6.4	3.0
Lower Atlantic	21.8	15.7	12.6	1.2	0.3

(a) Sketch a graphical display that compares the hurricane damage amounts per acre for the three different coastal regions (Gulf Coast, Florida, and Lower Atlantic) and that also shows how the damage amounts vary with distance from the coast.

(b) Describe differences and similarities in the hurricane damage amounts among the three regions.