AP Stats
Practice Test Chap 13-14 Name _____ Pd _____

Number of Questions — 20
Percent of Total Grade — 100

Directions: Solve each of the following problems, using the available space (or extra paper) for scratchwork. Decide which is the best of the choices given and place that letter on the ScanTron sheet. No credit will be given for anything written on these pages for this part of the test. Do not spend too much time on any one problem.

Provide an appropriate response.

1. At the track, a gambler bets on the wrong horse in a 10-horse field nine times in a row. Later, when talking to a friend, he said he was confident that he would pick the winner the next time, because he was "due to pick a winner." Comment on his reasoning. 1. _____
   A) When there are 10 horses in a race and he has chosen the wrong horse nine times in a row, he statistically should pick a winner the next time.
   B) This is false reasoning because he doesn't appear to be lucky.
   C) This is false reasoning because there is no "law of averages" for independent events.
   D) If he doesn't pick the winning horse next time, he will shortly after that.
   E) None of the above apply.

Solve the problem.

2. The plastic arrow on a spinner for a child's game stops rotating to point at a color that will determine what happens next. Determine whether the following probability assignment is legitimate. 2. _____

Probability of ...			
Red	Yellow	Green	Blue
0.7	0.1	0.1	0.2

A) Legitimate B) Not Legitimate

3. In a business class, 65% of the students have never taken a statistics class, 15% have taken only one semester of a statistics class, and the rest have taken two or more semesters of statistics. The professor randomly assigns students to groups of three to work on a project for the course. What is the probability that the first groupmate you meet has studied at least two semesters of statistics? 3. _____
   A) 0.85 B) 0.20 C) 0.35 D) 0.80 E) 0.15

Solve the problem. Round your answer, as needed.

4. An Imaginary Poll in January 2005 asked 1204 U.S. adults how likely they were to see a new movie that was coming out in the summer. Here's how they responded: 4. _____

Response	Number
Will definitely see it	238
Will probably see it	287
Will probably not see it	326
Will definitely not see it	353
Total	1204

Let's call someone who responded that they would definitely or probably see it a "likely viewer" and the other two categories, "unlikely viewer." If we select two people at random from this sample, what is the probability that both are likely viewers?

A) 0.318 B) 0.436 C) 0.039 D) 0.190 E) 0.872

5. Opinion–polling organizations contact their respondents by sampling random telephone numbers. Assume that interviewers can now reach about 74% of U.S. households, while the percentage of those contacted who agree to cooperate with the survey is 36%. Each household, of course, is independent of the others. What is the probability that the next household on the list will be contacted but will refuse to cooperate? 5. _____

A) 0.094 B) 0.166 C) 0.474 D) 0.192 E) 0.266

6. You roll a fair die four times. What is the probability that you roll at least one 6? 6. _____

A) 0.518 B) 0.667 C) 0.482 D) 0.0008 E) 0.167

Provide an appropriate response.

7. Which two events are most likely to be independent? 7. _____

A) having 3 inches of snow in the morning; being on time for school
B) having a car accident; having a junior license
C) doing the Statistics homework; getting an A on the test
D) being a senior; going to homeroom
E) registering to vote; being left–handed

8. An ice cream stand reports that 12% of the cones they sell are "jumbo" size. You want to see what a "jumbo" cone looks like, so you stand and watch the sales for a while. What is the probability that the first jumbo cone is the fourth cone you see them sell? 8. _____

A) 8% B) 33% C) 93% D) 60% E) 40%

Solve the problem.

9. The probability that a student at a certain college is male is 0.47. The probability that a student at that college has a job off campus is 0.32. The probability that a student at the college is male and has a job off campus is 0.12. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? 9. _____

A) 0 B) 0.79 C) 0.91 D) 0.55 E) 0.67

10. At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? 10. _____

A) 0.17 B) 0.19 C) 0.2 D) 0.02 E) 0.24

11. According to a survey conducted by an environmental organization, the probability that an eligible voter cares strongly about environmental issues is 0.59, the probability that an eligible voter votes regularly is 0.46 and the probability that an eligible voter both votes regularly and care strongly about environmental issues is 0.28. If an eligible voter is selected at random what is the probability that the person cares strongly about environmental issues but does not vote regularly? 11. _____

A) 0.31 B) 0.72 C) 0.13 D) 0.59 E) 0.03

12. A survey of the male students at a junior college reveals that, 27% play soccer regularly, 28% are Latino, and half of the Latino students play soccer regularly. If a male student is selected at random, what is the probability that he is neither Latino nor a soccer player? 12. _____

A) 0.86 B) 0.59 C) 0.45 D) 0.31 E) 0.27

Find the indicated probability.

13. You draw a card at random from a standard deck of 52 cards. Find the probability that the card is a face card given that it is a king. 13. _____

A) 0.077 B) 0.333 C) 1 D) 0.25 E) 0.231

14. You draw a card at random from a standard deck of 52 cards. Find the probability that the card is a heart given that it is black. 14. _____

A) 0.25 B) 0.077 C) 0 D) 0.333 E) 0.5

15. At a California college, 19% of students speak Spanish, 7% speak French, and 4% speak both languages. A student is chosen at random from the college What is the probability that the student speaks Spanish if she speaks French? 15. _____

A) 0.220 B) 0.030 C) 0.571 D) 0.040 E) 0.211

16. The table shows the political affiliation of voters in one city and their positions on stronger gun control laws. 16. _____

	Stronger Gun Control	
	Favor	Oppose
Republican	0.110	0.31
Democrat	0.22	0.18
Other	0.10	0.08

What is the probability that a voter who favors stronger gun control laws is a Republican?

A) 0.110 B) 0.256 C) 0.430 D) 0.262 E) 0.420

17. You are dealt a hand of three cards, one at a time. Find the probability that your cards are all face cards. 17. _____

A) 0.250 B) 0.012 C) 0.025 D) 0.013 E) 0.010

18. A box contains 12 batteries of which 6 are still working. Anne starts picking batteries one at a time from the box and testing them. Find the probability that she has to pick 5 batteries in order to find one that works. 18. _____

A) 0.031 B) 6.750 C) 0.023 D) 0.009 E) 0.008

19. You are dealt a hand of three cards, one at a time. Find the probability that you have at least one face card. 19. _____

A) 0.423 B) 0.553 C) 0.447 D) 0.545 E) 0.010

Determine whether the events are independent and give a reason.

20. The contingency table below classifies a random sample of patients at a hospital by blood type and sex. 20. _____

	Blood Type				
Sex	O	A	B	AB	Total
F	110	88	18	9	225
M	77	65	17	6	165
Total	187	153	35	15	390

Are being blood type B and being female independent events?

A) No, 4.6% of patients are both blood type B and female

B) Yes, the probability that a patient is female is the same as the probability that a person is female given that they are blood type B .

C) Yes, because P(B and F) = P(B) • P(F)

D) No, overall 9.0% of patients are blood type B , but among females 8.0% are blood type B. These are not equal.

E) Yes, nobody is both blood type B and female

Use a tree diagram to find the indicated probability.

21. A company is conducting a sweepstakes, and ships two boxes of game pieces to a particular store. 7% of the contents of box A are winners, while 2% of the contents of box B are winners. Box A contains 32% of the total tickets. If the contents of both boxes are mixed in a drawer and a ticket is chosen at random, what is the probability it is a winner? 21. _____

A) 0.022 B) 0.07 C) 0.09 D) 0.036 E) 0.045

22. Shameel has a flight to catch on Monday morning. His father will give him a ride to the airport. If it rains, the traffic will be bad and the probability that he will miss his flight is 0.05. If it doesn't rain, the probability that he will miss his flight is 0.01. The probability that it will rain on Monday is 0.18. Suppose that Shameel misses his flight. What is the probability that it was raining? 22. _____

A) 0.523 B) 0.05 C) 0.18 D) 0.477 E) 1.098

Answer Key
Testname: PRACTICE TEST - CHAP 13-14

1. C
2. B
3. B
4. D
5. C
6. A
7. E
8. A
9. E
10. B
11. A
12. B
13. C
14. C
15. C
16. B
17. E
18. C
19. B
20. D
21. D
22. A