PRACTICE EXERCISES

Table A below shows the distribution of undergraduate students at Normal University according to the number of credit hours for which they are registered this semester. Table B below shows the distribution of students at Normal University according to cumulative G.P.A.

TABLE A

# of credit hours	% of students
11 or fewer	12%
12	31%
13	6%
14	8%
15	21%
16	9%
17	2%
18 or more	11%

TABLE B

cumulative G.P.A.	% of students
0.00 - 0.80	14%
0.81 - 1.60	16%
1.61 - 2.40	38%
2.41 - 3.20	17%
3.21 - 4.00	15%

1 - 8: Refer to the appropriate table to determine the probability that a randomly selected student:

1. has a G.P.A. less than 0.81, given that the G.P.A is less than 2.41.
A. .259 B. .14 C. .095 D. .206

2. is enrolled for 17 credit hours, given that he/she is enrolled for more than 15 credit hours.
A. .0909 B. .0952 C. .9090 D. .2222

3. has a G.P.A. greater than 3.20, given that the G.P.A is greater than 2.40.
A. .882 B. .048 C. .469 D. .144

4. is enrolled for 12 credit hours, given that he/she is enrolled for 12 or 13 hours.
A. .25 B. .8378 C. .1147 D. .3407

5. …is enrolled for 12 credit hours and has a G.P.A. in the 1.61 - 2.40 range (assume that # credit hours enrolled and cumulative G.P.A are INDEPENDENT of one another).
A. .69 B. .1178 C. .8158 D. .1209

6. …is enrolled for 18 or more credit hours and has a G.P.A. greater than 3.20.
A. .7333 B. .26 C. .0165 D. .24

7. …is enrolled for 11 or fewer credit hours or has a G.P.A. in the 2.41 - 3.20 range.
A. .2696 B. .29 C. .0204 D. .7059

8. …is enrolled for 16 credit hours or has a G.P.A less than 1.61.
A. .363 B. .027 C. .39 D. .3448

Exercises 9 - 11 refer to this situation: Homer has a '68 VW Bus and an '85 Yugo. On 25% of the days of the year, Homer finds that the VW will not start. On 30% of the days of the year, the Yugo will not start. Whether or not a particular vehicle starts seems to be random and independent of the other vehicle. On a given day, what is the probability…

9. …that the VW starts and the Yugo doesn't start?
A. .45 B. .225 C. .55 D. .075

10. …that both vehicles start?
A. .525 B. .55 C. .075 D. 1.35

11. …that at least one of the vehicles doesn't start?
A. .075 B. .895 C. .55 D. .475

12 - 13: Statistics for a certain carnival game reveal that the contestants win a large teddy bear 1% of the time, win a small teddy bear 4% of the time, win a feather attached to an alligator clip 35% of the time, and lose the rest of the time. What is the probability that a randomly selected player…

12. …wins a large teddy bear, given that he/she wins something?
A. .0085 B. .2857 C. .029 D. .025

13. …wins a small teddy bear, given that/he she wins a teddy bear?
A. .8 B. .2 C. .3 D. .03

14. Referring to the carnival game in the previous example: If Bernie and Ernie each play once, what is the probability that Bernie loses and Ernie wins a feather, assuming that Ernie and Bernie are a couple of randomly selected, independent guys?
A. .95 B. .5833 C. .21 D. .15

15. Like #14: what is the probability that at least one of them wins something?
A. .8 B . .16 C. .64 D. .96

16. True fact from medical history: *If a human is bitten by a dog showing symptoms of rabies, and the human does not seek medical treatment, the probability that the human will develop symptoms of rabies (a disease that is nearly always fatal) is about 1/6.*

If two people are bitten by dogs that show symptoms of rabies, what is the probability that neither person will develop symptoms of rabies?
A. 2/6 B. 10/6 C. 1/36 D. 10/36 E. 25/36

17. There are 8 Republicans and 6 Democrats on a congressional committee. The Gomermatic Corporation is going to randomly select two committee members to be recipients of $100,000 campaign contributions. Find the probability that both selectees will be Democrats.
A. .165 B. .813 C. .857 D. .536

18. The table below shows the distribution according to salary of the employees of a large corporation.

annual salary	% of employees
$0 - 9,999	4%
10,000 - 29,999	38%
30,000 - 59,999	32%
60,000 - 99,999	17%
100,000 or more	9%

If Homerina and Gomerina are a couple of randomly selected, independent persons, what is the probability that at least one of them has salary less than $30,000?
A. .9324 B. .76 C. .6636 D. .84

19. In a basket, there are 10 ripe peaches, 8 unripe peaches, 12 ripe apples, and 4 unripe apples. If two fruit are chosen, what is the probability that neither are peaches?
A. .2727 B. .2215 C. .2803 D. .2139

ANSWERS TO PRACTICE EXERCISES

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