

1. Find the number of subsets of the set {mom, dad, son, daughter}.
- 14
 - 12
 - 8
 - 16
2. Let $U = \{\text{all soda pops}\}$; $A = \{\text{all diet soda pops}\}$; $B = \{\text{all cola soda pops}\}$; and $C = \{\text{all soda pops in cans}\}$. Describe the set $(A \cap B) \cap C'$ in words.
- All diet-cola soda pops not in cans
 - All cola soda pops not in cans
 - All soda pops that are diet colas or not in cans
 - All non-diet, non-cola soda pops not in cans
3. Bill has 6 friends over for dinner. After dinner, the seven of them are thinking about going out dancing. Not everyone is sure that they want to go. How many subsets of dancers of the seven are possible if at least two people go dancing?
- 121
 - 120
 - 56
 - 6
4. If $n(A) = 32$, $n(B) = 93$, and $n(A \cup B) = 109$, what is $n(A \cap B)$?
- 18
 - 16
 - 48
 - 8
5. A survey of a group of 111 tourists was taken in St. Louis. The survey showed the following:
 60 of the tourists plan to visit the Gateway Arch;
 44 plan to visit the zoo;
 10 plan to visit the Art Museum and the zoo, but not the Gateway Arch;
 14 plan to visit the Art Museum and the Gateway Arch, but not the zoo;
 16 plan to visit the Gateway Arch and the zoo, but not the Art Museum;
 6 plan to visit the Art Museum, the zoo, and the Gateway Arch;
 16 plan to visit none of the three places.
 How many plan to visit the Art Museum only?

- 32
- 56
- 13
- 95

6. Find the cardinal number of the set $V \cap (P \cup W)$ by referring to the table:

Year	U.S. Production (in Thousands of Tons) of Certain Nuts			
	Pecans (P)	Almonds (A)	Walnuts (W)	Hazelnuts (H)
1993 (T)	185	584	232	41
1994 (F)	99	586	232	21
1995 (V)	134	304	229	39
1996 (S)	111	412	205	18

- 363
- 343
- 0
- 166

7. Write the sample space for the following experiment: A box contains 2 blue cards numbered 1 and 2, and 3 green cards numbered 1 through 3. A blue card is picked, followed by a green card.

- {1, 2}
- {(1, 1), (1, 2), (2, 1), (2, 2), (3, 1), (3, 2)}
- {(1, 1), (1, 2), (1, 3), (2, 1), (2, 2), (2, 3)}
- {7}

8. Two dice are rolled. Write the indicated event in set notation: "The sum of the dice is greater than 10."

- {(6, 5)}
- {(4, 6), (6, 4), (5, 6), (6, 5), (5, 5)}
- {(6, 5), (5, 6), (6, 6)}
- {(6, 6)}

9. A spinner has equal regions numbered 1 through 18. What is the probability that the spinner will stop on an even number or a multiple of 3?
- a) 1
b) $\frac{1}{18}$
c) $\frac{2}{3}$
d) $\frac{1}{3}$
10. Two fair dice are rolled. What is the probability that the sum is no more than 5?
- a) $\frac{1}{4}$
b) $\frac{5}{6}$
c) $\frac{1}{3}$
d) $\frac{5}{18}$
11. Two fair dice are rolled. What is the probability that a sum of 6 or 11 is obtained?
- a) $\frac{7}{6}$
b) $\frac{1}{66}$
c) $\frac{7}{36}$
d) $\frac{17}{36}$
12. When two balanced dice are rolled, there are 36 possible outcomes. Find the probability that the first die is 3 or that doubles are rolled?
- a) $\frac{1}{3}$
b) $\frac{11}{36}$
c) $\frac{1}{36}$
d) $\frac{5}{18}$
13. The odds in favor of a horse winning a race are posted as 8:5. Find the probability that the horse will lose the race?
- a) $\frac{5}{13}$
b) $\frac{8}{13}$
c) $\frac{1}{3}$
d) $\frac{5}{8}$
14. A survey revealed that 50% of people are entertained by reading books, 33% are entertained by watching TV, and 17% are entertained by both books and TV. What is the probability that a person will be entertained by either books or TV?
- a) 17%
b) 83%
c) 66%
d) 100%
15. A box contains 26 blue marbles, 17 green marbles, and 7 red marbles. Two marbles are selected at random without replacement. Let E be the event that the first marble selected is green. Let F be the event that the second marble selected is green. Find $P(F|E)$.
- a) $\frac{17}{49}$
b) $\frac{17}{50}$
c) $\frac{16}{49}$
d) $\frac{8}{25}$
16. Assume that two marbles are drawn without replacement from a box with 1 blue, 3 white, 2 green, and 2 red marbles. Find the probability that both marbles are green.
- a) $\frac{1}{14}$
b) $\frac{1}{28}$
c) $\frac{1}{4}$
d) $\frac{1}{16}$

17. People in a survey were given three choices of soft drinks and asked to choose one favorite. The following table shows the results. One of the participants is selected at random. Find the probability that the person prefers root beer given that they are over 40.

	cola	rootbeer	lemon-lime
under 21 years of age	40	25	20
between 21-40	35	20	30
over 40 years of age	20	30	35

- a) $\frac{2}{5}$
 b) $\frac{6}{17}$
 c) $\frac{2}{17}$
 d) $\frac{20}{51}$
18. For two events M and N , $P(M) = 0.8$, $P(N|M) = 0.1$, and $P(N|M') = 0.2$. Find $P(M'|N)$.

- a) 0
 b) 1
 c) $\frac{1}{3}$
 d) $\frac{2}{3}$

19. Given that a student correctly uses the following form of Bayes' theorem,

$$P(R_1|T) = \frac{P(T|R_1)P(R_1)}{P(T|R_1)P(R_1) + P(T|R_2)P(R_2) + P(T|R_3)P(R_3)}$$

make a precise statement about the value of $P(R_1 \cup R_2 \cup R_3)$.

- a) $P = 0$
 b) $P = 1$
 c) $0 < P < 1$
 d) $0 \leq P \leq 1$
20. A sample space S is a set of 5 outcomes. How many distinct events are possible for S ?
- a) 1
 b) 32
 c) 5
 d) 120

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MATH 017

2 - EX2

ITEM NO.	FORM:	A
1		D
2		A
3		B
4		B
5		
6		A
7		C
8		C
9		C
10		D
11		C
12		B
13		A
14		C
15		C
16		B
17		B
18		C
19		B
20		B