Exam

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

1) Identify the sample space of the probability experiment: determining the children's gender for a family of three children (Use B for boy and G for girl.) 1) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

2) The $P(A) = \frac{3}{5}$. Find the odds in favor of A. 2) _____

A) 5:2 B) 3:2 C) 2:5 D) 2:3

3) If a card is picked at random from a standard deck of 52 playing cards, find the odds that the card is not a heart. 3) _____

A) 1:3 B) 4:1 C) 3:1 D) 1:4

4) The distribution of blood types for 100 Americans is listed in the table. If one donor is selected at random, find the probability of not selecting a person with blood type B+. 4) _____

Blood Type	O+	O-	A+	A-	B+	B-	AB+	AB-
Number	37	6	34	6	10	2	4	1

A) 0.12 B) 0.82 C) 0.90 D) 0.10

5) Classify the statement as an example of classical probability, empirical probability, or subjective probability. In California's Pick Three lottery, a person selects a 3-digit number. The probability of winning California's Pick Three lottery is $\frac{1}{1000}$. 5) _____

A) classical probability B) subjective probability C) empirical probability

6) Classify the events as dependent or independent. 6) _____
The events of getting two aces when two cards are drawn from a deck of playing cards and the first card is replaced before the second card is drawn.

A) independent B) dependent

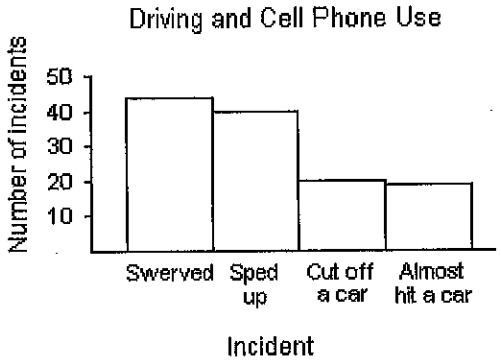
7) Four students drive to school in the same car. The students claim they were late to school and missed a test because of a flat tire. On the makeup test, the instructor asks the students to identify the tire that went flat; front driver's side, front passenger's side, rear driver's side, or rear passenger's side. If the students didn't really have a flat tire and each randomly selects a tire, what is the probability that all four students select the same tire? 7) _____

A) $\frac{1}{256}$ B) $\frac{1}{64}$ C) $\frac{1}{4}$ D) $\frac{1}{8}$

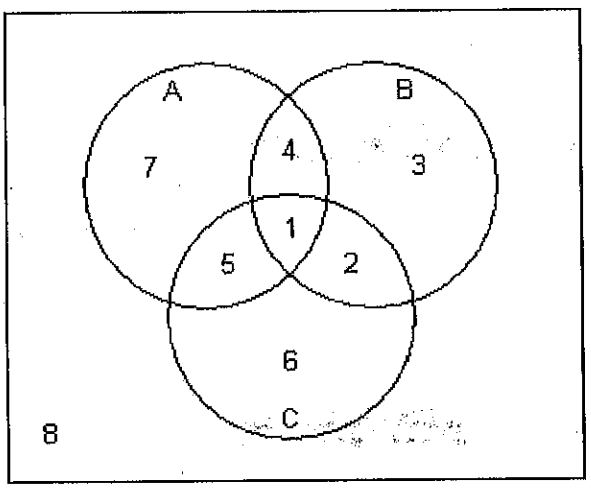
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

8) A multiple-choice test has five questions, each with five choices for the answer. Only one of the choices is correct. You randomly guess the answer to each question. What is the probability that you do not answer any of the questions correctly? 8) _____

9) Use the following graph, which shows the types of incidents encountered with drivers using cell phones, to find the probability that a randomly chosen incident did not involve cutting off a car. 9) _____



10) In the Venn diagram below, event A represents the adults who drink coffee, event B represents the adults who drink tea, and event C represents the adults who drink cola. List the region(s) which represent the adults who drink only cola. 10) _____



MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

11) Decide if the events A and B are mutually exclusive or not mutually exclusive. A card is drawn from a standard deck of 52 playing cards. 11) _____
A: The result is a 7.
B: The result is a jack.

A) mutually exclusive B) not mutually exclusive

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

12) Find the probability of selecting two consecutive threes when two cards are drawn without replacement from a standard deck of 52 playing cards. Round your answer to four decimal places. 12) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

13) The events A and B are mutually exclusive. If P(A) = 0.2 and P(B) = 0.4, what is P(A or B)? 13) _____

A) 0.6 B) 0.08 C) 0 D) 0.2

14) A card is drawn from a standard deck of 52 playing cards. Find the probability that the card is an ace or a black card. 14) _____

A) $\frac{7}{13}$ B) $\frac{29}{52}$ C) $\frac{15}{26}$ D) $\frac{4}{13}$

15) At the local racetrack, the favorite in a race has odds 3:2 in favor of winning. What is the probability that the favorite wins the race? 15) _____

A) 0.8 B) 0.6 C) 0.4 D) 0.2

16) The table lists the smoking habits of a group of college students. 16) _____

Sex	Non-smoker	Regular Smoker	Heavy Smoker	Total
Man	135	37	5	177
Woman	187	21	5	213
Total	322	58	10	390

If a student is chosen at random, find the probability of getting someone who is a woman or a heavy smoker. Round your answer to three decimal places.

A) 0.572 B) 0.108 C) 0.933 D) 0.851

17) The distribution of Master's degrees conferred by a university is listed in the table. (assume that a student majors in only one subject) 17) _____

Major	Frequency
Mathematics	216
English	207
Engineering	79
Business	176
Education	226

What is the probability that a randomly selected student with a Master's degree majored in Business, Education or Engineering? Round your answer to three decimal places.

A) 0.282 B) 0.468 C) 0.532 D) 0.337

18) A coin is tossed. Find the probability that the result is heads. 18) _____

A) 0.9 B) 0.5 C) 0.1 D) 1

19) Find the probability of answering two true or false questions correctly if random guesses are made. Only one of the choices is correct. 19) _____

A) 0.75 B) 0.1 C) 0.25 D) 0.5

20) A question has five multiple-choice questions. Find the probability of guessing the correct answer. 20) _____

A) $\frac{4}{5}$ B) $\frac{1}{5}$ C) $\frac{2}{5}$ D) $\frac{5}{4}$

21) The distribution of blood types for 100 Americans is listed in the table. If one donor is selected at random, find the probability of selecting a person with blood type A+ or A-. 21) _____

Blood Type	O+	O-	A+	A-	B+	B-	AB+	AB-
Number	37	6	34	6	10	2	4	1

A) 0.34 B) 0.45 C) 0.4 D) 0.60

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

22) The probability it will rain is 40% each day over a three-day period. What is the probability it will not rain at least one of the three days? 22) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

23) Which of the following cannot be a probability? 23) _____

A) 0 B) -87 C) 0.001 D) $\frac{\sqrt{5}}{3}$

24) A multiple-choice test has five questions, each with five choices for the answer. Only one of the choices is correct. You randomly guess the answer to each question. What is the probability that you answer the first two questions correctly? 24) _____

A) 0.04 B) 0.4 C) 0.2 D) 0.02

25) Classify the statement as an example of classical probability, empirical probability, or subjective probability. The probability that a newborn baby is a boy is $\frac{1}{2}$. 25) _____

A) empirical probability B) classical probability C) subjective probability

26) Classify the events as dependent or independent. Events A and B where P(A) = 0.6, P(B) = 0.3, and P(A and B) = 0.17. 26) _____

A) independent B) dependent

27) The events A and B are mutually exclusive. If P(A) = 0.2 and P(B) = 0.1, what is P(A and B)? 27) _____

A) 0.5 B) 0.3 C) 0 D) 0.02

1) (BBB), (BBG), (BGB), (GBB), (BGG), (GBG), (GGB), (GGG)
2) B
3) C
4) C
5) A
6) A
7) B
8) P(all five questions answers incorrect) $= \left(\frac{4}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right) = 0.32768$
9) 0.837
10) 6
11) A
12) P(2-threes) $= \left(\frac{4}{52}\right)\left(\frac{3}{51}\right) = 0.0045$
13) A
14) A
15) B
16) A
17) C
18) B
19) C
20) B
21) C
22) P(not rain at least one day) = 1 - P(rain all three days)
$= 1 - (0.40)(0.40)(0.40)$
$= 0.936$
23) B
24) A
25) B
26) B
27) C
28) B
29) C
30) Let E = the event the complaint was against Continental

$P(E) = \frac{79}{260}$

$P(E') = 1 - P(E) = 1 - \frac{79}{260} = \frac{181}{260} = 0.696$

31) D