

Math 1324 Practice Test Four

#1 Given the formula $n(A \cup B) = n(A) + n(B) - n(A \cap B)$, solve for $n(B)$.

#2 Given:

A = {set of male students taking the exam}

B = {set of students taking the exam sitting on back row}

Find:

$n(B)$

$n(A)$

$n(A \cap B)$

$n(A \cup B)$

#3 Evaluate $12!$

#4 Evaluate $C(6,3)$

#5 Evaluate $P(8,2)$

#6 How many possible ways can a ten question, four-choice multiple-choice survey be answered?

#7 Assume a spinner is divided into three equal parts labeled 1, 2, & 3 and that the spinner operates without bias. Assume an experiment consists of spinning the spinner three times. A) What is the sample space for the experiment? B) What is the probability that a particular outcome will add up to an even number?

#8 The number of hits recorded at five different and competing websites is given below. Find the probability distribution associated with this data.

Website	Number of Hits
1	450
2	580
3	260
4	410
5	300

#9 If two balls are selected at random without replacement from a container holding three golf balls, seven ping-pong balls, and eight whiffle balls, what is the probability that both are ping-pong balls?

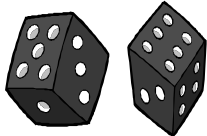
#10 One card is selected from a standard well-shuffled 52-card deck. Find the probability that the card is either a spade or a two.

#11 A test consists of ten three-choice, multiple-choice questions. If a student guesses at every answer, what is the probability that the student will answer at least eighty percent of the questions correctly?

#12 If the random variable X represents the number of defective watches in a sample of eight watches, describe the range of values that X may assume.

#13 A family plans to have six children. What is the probability that the two youngest children will be both girls, assuming that the probability of having a girl is equal to the probability of having a boy?

#14 Two fair dice are cast. Find the probability that the sum is odd given that one die is a four.



#15 Two cards are drawn from a standard, well-shuffled 52-card deck without replacement. Find the probability that neither card is a face card.

#16 Two cards are drawn from a standard, well-shuffled 52-card deck without replacement. What is the probability of the second card being a club given that the first card is black?

#17 Find the expected value of a random variable X having the following probability distribution:

x	$P(X = x)$
-\$1	.5
-\$5	.2
-\$10	.1
\$0	.15
\$50	.05

#18 Find the expected gain for an insurance company when it sells a single-year term-life insurance policy for \$130 if the policy pays \$10,000 if the purchaser dies within the year given that there is a .992 probability that the purchaser will live another year.

#19 An investor is considering investing \$10,000 in a mutual fund. The probability distribution below describes the anticipated returns from price appreciation and dividends (in hundreds of dollars).

Returns in Hundreds of Dollars	Probability
-4	.2
8	.5
10	.3

Compute the mean, variance, and standard deviation associated with the returns of the mutual fund.

#20 A probability distribution has a mean of forty-two and a standard deviation of two. Use Chebychev's inequality to estimate the probability that an outcome of the experiment lies between thirty and fifty-four.