Test Your Knowledge–Probability (Multiple Selected Items)

Name_____

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

Find the indicated probability.

1) In one town, 31% of all voters are Democrats. If two voters are randomly selected for a survey, find the probability that they are both Democrats.

1) _____

2) Find the probability of correctly answering the first 2 questions on a multiple choice test if random guesses are made and each question has 3 possible answers.

2) _____

3) A manufacturing process has a 70% yield, meaning that 70% of the products are acceptable and 30% are defective. If three of the products are randomly selected, find the probability that all of them are acceptable.

3) _____

4) A batch consists of 12 defective coils and 88 good ones. Find the probability of getting two good coils when two coils are randomly selected if the first selection is replaced before the second is made.

4) _____

5) A bin contains 77 light bulbs of which 10 are defective. If 5 light bulbs are randomly selected from the bin with replacement, find the probability that all the bulbs selected are good ones.

5) _____

6) In one town, 64% of adults have health insurance. What is the probability that 6 adults selected at random from the town all have health insurance?

6) _____

7) A study conducted at a certain college shows that 52% of the school's graduates find a job in their chosen field within a year after graduation. Find the probability that 9 randomly selected graduates all find jobs in their chosen field within a year of graduating.

7) _____

8) In a homicide case 8 different witnesses picked the same man from a line up. The line up contained 5 men. If the identifications were made by random guesses, find the probability that all 8 witnesses would pick the same person.

8) _____

9) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black.

9) _____

10) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that the first card is a King and the second card is a queen.

10) _____

11) What is the probability that 4 randomly selected people all have different birthdays?

11) _____

12) Among the contestants in a competition are 39 women and 29 men. If 5 winners are randomly selected, what is the probability that they are all men?

12) _____

13) A sample of 4 different calculators is randomly selected from a group containing 45 that are defective and 27 that have no defects. What is the probability that all four of the calculators selected are defective?

13) _____

1

14) The table below describes the smoking habits of a group of asthma sufferers.   14) _____

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	424	31	44	499
Women	345	37	36	418
Total	769	68	80	917

If two different people are randomly selected from the 917 subjects, find the probability that they are both heavy smokers.

15) The table below describes the smoking habits of a group of asthma sufferers.   15) _____

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	430	42	46	518
Women	301	42	50	393
Total	731	84	96	911

If two different people are randomly selected from the 911 subjects, find the probability that they are both women.

16) An unprepared student makes random guesses for the ten true–false questions on a quiz.   16) _____
Find the probability that there is at least one correct answer.

17) A study conducted at a certain college shows that 57% of the school's graduates find a job   17) _____
in their chosen field within a year after graduation. Find the probability that among 8
randomly selected graduates, at least one finds a job in his or her chosen field within a year
of graduating.

18) A sample of 4 different calculators is randomly selected from a group containing 11 that   18) _____
are defective and 30 that have no defects. What is the probability that at least one of the
calculators is defective?

19) In a batch of 8,000 clock radios 7% are defective. A sample of 6 clock radios is randomly   19) _____
selected without replacement from the 8,000 and tested. The entire batch will be rejected if
at least one of those tested is defective. What is the probability that the entire batch will be
rejected?

20) In a blood testing procedure, blood samples from 6 people are combined into one mixture.   20) _____
The mixture will only test negative if all the individual samples are negative. If the
probability that an individual sample tests positive is 0.12, what is the probability that the
mixture will test positive?

2

1) 0.096

2) $\dfrac{1}{9}$

3) 0.343

4) 0.7744

5) 0.499

6) 0.069

7) 0.003

8) 0.0000128

9) $\dfrac{25}{102}$

10) $\dfrac{4}{663}$

11) 0.9836

12) 0.01139

13) 0.1448

14) 0.007524

15) 0.1858

16) $\dfrac{1{,}023}{1{,}024}$

17) 0.999

18) 0.729

19) 0.353

20) 0.536