NAME:

Unit 6 Test: Lessons 45–56

Multiple Choice

_____ **1)** Determine the type of distribution for the data set:
$\{6, 8, 8, 9, 9, 15, 29\}$

A) Left-skewed

B) Symmetric

C) Right-skewed

D) Cannot be determined

_____ **2)** Callie's Coffee is a drive-thru store. They decide to survey every tenth customer about their ordering experience. Identify the type of sampling method used.

A) Cluster sampling

B) Simple random sampling

C) Stratified sampling

D) Systematic sampling

_____ **3)** A coin is flipped four times. What is the probability of the coin landing heads up exactly two times?

A) $\frac{1}{2}$ **B)** $\frac{3}{8}$ **C)** $\frac{1}{4}$ **D)** $\frac{1}{16}$

_____ **4)** What expression represents the sum of the 49th row of Pascal's Triangle?

A) 49^{49} **B)** $49!$ **C)** n^{49} **D)** 2^{49}

_____ **5)** Heights of privacy hedges are normally distributed and grown to an average height of 65 inches with a standard deviation of 3 inches. What is the range that includes 95% of the heights of the privacy hedges?

A) 62 to 68 inches

B) 56 to 74 inches

C) 59 to 71 inches

D) 62 to 71 inches

____ 6) A bag contains four red, three yellow, and five green marbles. What is the probability of selecting a marble that is *not* yellow?

A) $\frac{1}{3}$ **B)** $\frac{1}{4}$ **C)** $\frac{5}{12}$ **D)** $\frac{3}{4}$

____ 7) A survey of 225 community members has a sample standard deviation of 5.1 percentage points. Determine the maximum error of the estimate for a 90% confidence level.

A) 0.56 **B)** 0.67 **C)** 0.88 **D)** 1.65

____ 8) What does $\mathrm{P}(\mathrm{B}|\mathrm{A})$ mean when working with conditional probabilities?

A) The probability of A given B occurred.

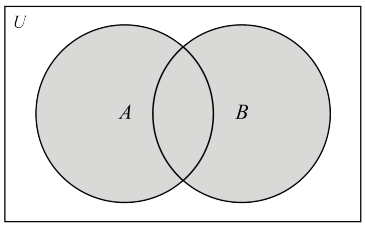
B) The probability of B given A occurred.

C) The probability of A and B occurred.

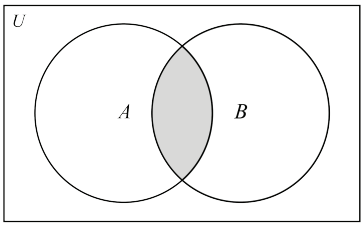
D) The probability of A or B occurred.

____ 9) Which diagram represents $A \cup B$?

A)



B)



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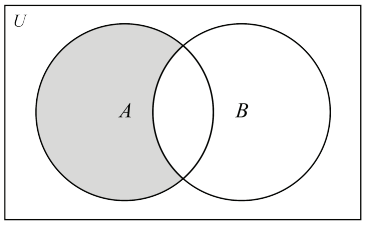
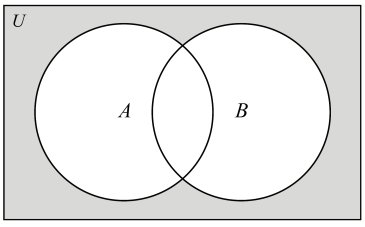


D)



____ 10) Mr. Boone noticed the final exam for his class was normally distributed with an average of 82% and a standard deviation of 5 percentage points. What is the approximate likelihood that a student scored higher than 91%?

A) 1.8% **B)** 3.6% **C)** 87% **D)** 96.4%

_____ **11)** What is the main problem with a clothing store only surveying the first ten customers that entered the store on a single day?

A) The population is unknown.

B) The sample is too small.

C) The sample is too large.

D) The sample is not random.

_____ **12)** Judges ranked seven auditioning violinists for the Town Symphony's first- and second-chair violin seats. How many possible ways could the judges rank the violinists first and second choice?

A) 14 **B)** 21 **C)** 42 **D)** 49

_____ **13)** Fitness-4-All Gym documented that 70% of members use the cardio machines and 50% lift weights. If $P(\text{cardio}|\text{weights}) = 0.8$, what is $P(\text{cardio} \cap \text{weights})$?

A) 0.8 **B)** 0.56 **C)** 0.40 **D)** 0.35

_____ **14)** Determine the coefficient of the middle term when the binomial $(3x + 1)^4$ is expanded.

A) 4 **B)** 6 **C)** 9 **D)** 54

_____ **15)** Athletes were divided into two groups to determine if breathing exercises improved performance on game days. After a simulation of 10,000 trials, the standard deviation was 1.5 percentage points.

Determine the z-score for the observed difference at the 95% level.

A) 1.50

B) 1.96

C) 2.67

D) 3.40

Group $n = 75$	**Average Performance**
Treatment: added breathing exercises	72.2%
Control: no breathing exercises	68.8%

_____ **16)** A normal data distribution has a mean of 100 and a standard deviation of 15. What approximate percentage of data falls below 87?

A) 19% **B)** 34% **C)** 68% **D)** 81%

_____ **17)** A researcher calculated the z-score of the observed difference between treatment and control groups to be 0.34. What can the researcher conclude?

A) The treatment is highly effective.

B) A larger experiment should be conducted.

C) The results are not statistically significant.

D) The results are statistically significant.

_____ **18)** From a standard deck of cards, determine P(king or heart).

A) $\frac{4}{13}$ **B)** $\frac{17}{52}$ **C)** $\frac{9}{26}$ **D)** $\frac{1}{4}$

_____ **19)** A scientist collects 200 crayfish from Lake Luna containing 10,000 crayfish. Name the sample.

A) The 200 crayfish collected. **B)** All crayfish in Lake Luna.

C) All crayfish in all lakes. **D)** There is no sample named.

_____ **20)** A restaurant designed a new menu with eight appetizers, six salads, and twelve entrees. How many unique meals can be created when one option from each part of the menu is selected?

A) 26 **B)** 72 **C)** 96 **D)** 576

_____ **21)** If an experiment runs 200 times with a theoretical probability of 0.25, how many successes can you expect?

A) 25 **B)** 50 **C)** 100 **D)** 200

22) A consumer group randomly selected 150 customers to complete a survey. If 9% of customers reported being dissatisfied with a margin of error equal to $\pm 7\%$, what interval contains the population parameter for satisfied customers?

A) Between 2% and 16% of customers will be satisfied.

B) Between 91% and 98% of customers will be satisfied.

C) Between 84% and 91% of customers will be satisfied.

D) Between 84% and 98% of customers will be satisfied.

23) A researcher surveys and records the species of birds people have seen when visiting a park. What type of study is this?

A) Experiment

B) Observation

C) Survey

D) Census

24) In a standard normal distribution, approximately what proportion of data falls between $z = -0.1$ and $z = 1$.

A) 0.38 **B)** 0.46 **C)** 0.68 **D)** 0.84

25) A six-sided number cube is rolled twice. What is the probability that the first number rolled is even, and the next number is less than three?

A) $\frac{5}{6}$ **B)** $\frac{1}{2}$ **C)** $\frac{1}{3}$ **D)** $\frac{1}{6}$