

___ 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) $\frac{3}{4}$

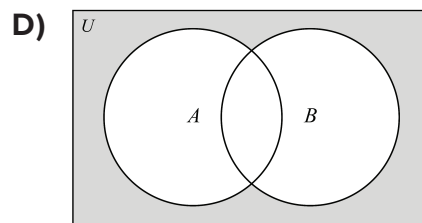
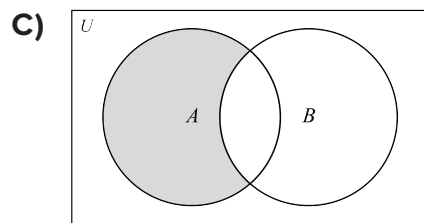
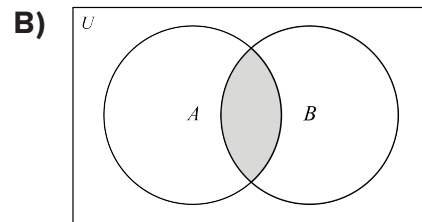
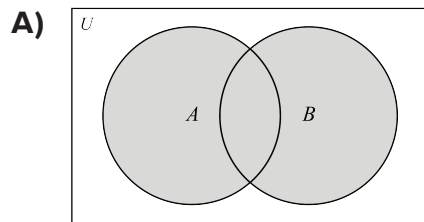
___ 7) A survey of 225 community members has a sample standard deviation of 5.1 percentage points. Determine the maximum error of the estimate for a 90% confidence level.

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

___ 8) What does $P(B|A)$ 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 $A \cup B$?



___ 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) 2.27
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 $P(\text{king or heart})$.
- 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

