

**Directions:** Please choose the best answer choice for each of the following questions.

1. If A is the set of all odd numbers and B is the set of perfect squares, which of these numbers is in the set of the intersection of A and B?
  - A. 3
  - B. 9
  - C. 16
  - D. 20
  
2. If set  $A = \{-1, 0, 1\}$  and set  $B = \{-3, -1, 0, 1, 3\}$ , what is the intersection of A and B?
  - A. (empty set)
  - B.  $\{-1, 0, 1\}$
  - C.  $\{-3, -1, 0, 1, 3\}$
  - D.  $\{-3, 0, 3\}$
  
3. If set  $A = \{-1, 0, 1\}$  and set  $B = \{-3, -1, 0, 1, 3\}$ , what is the union of A and B?
  - A. Null
  - B.  $\{-3, -1, 0, 1, 3\}$
  - C.  $\{-1, 0, 1\}$
  - D.  $\{-3, 3\}$
  
4. If  $C = \{\text{blue, red, yellow, green}\}$  and set C is contained within D, which of the following could be set D?
  - A.  $\{\text{blue}\}$
  - B.  $\{\text{blue, red, yellow}\}$
  - C.  $\{\text{red, yellow, orange, green}\}$
  - D.  $\{\text{blue, red, yellow, orange, green}\}$
  
5. A community theater group is selling 100 raffle tickets for a fundraiser. The tickets are numbered 00–99, and only one ticket will be randomly drawn. Rafael wants to determine the probabilities of the events below.  
  
Event A: The winning ticket number will end in 0.  
Event B: The winning ticket number will begin with 5.  
Event C: The winning ticket number will end in 0 OR begin with 5.  
Event D: The winning ticket number will end in 0 AND begin with 5.  
  
Which of these describes the differences between Event C and Event D?
  - A. D is a dependent event. Event C is an independent event.  
  
Event C is the union of Event A and Event B.
  - B. Event D is the intersection of Event A and Event B.
  - C. Event C is the intersection of Event A and Event B. Event D is the union of Event A and Event B.  
  
The probability of Event C is the difference between the probabilities of Event A and Event B.
  - D. The probability of Event D is the sum of the probabilities of Event A and Event B.
  
6. The Venn diagram below shows the relationship between the members of the glee club.  
A = Sopranos  
B = Altos  
C = Everyone else in the glee club

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Which of the following is NOT true?

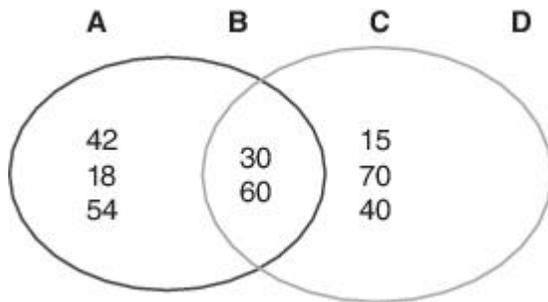
- A. There are 60 members in the glee club.
- B. There are 18 members of the glee club who are neither sopranos nor altos.
- C. There are 6 members of the glee club that can sing either alto or soprano.
- D. There are more members that are altos than those who are only sopranos in the glee club.

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7. There are 85 flags in Paige's flag collection. Of these, 30 of the flags include the color red in their designs, 35 include white, and 24 include neither red nor white. What is the number of flags in Paige's collection that must include both red and white?

- A. 1
- B. 2
- C. 3
- D. 4

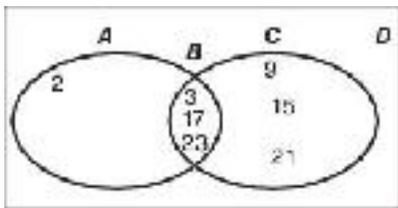
8. Kendra discovered a relationship between some numbers. She organized the numbers into a Venn diagram.



In which section should the number 75 go?

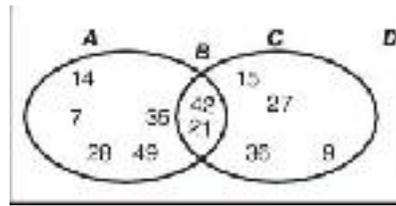
- A. in section A
- B. in section B
- C. in section C
- D. in section D

9. Margaret observed a relationship between some numbers. She organized them into a Venn diagram. In which section does the number 27 belong?



- A. A
- B. B
- C. C
- D. D

10. Barb discovered a relationship between some numbers. She organized them in a Venn diagram.



In which section should the number 56 go?

- A. in section A
- B. in section B
- C. in section C
- D. in section D

Stop! You have finished this exam.