

Review 3, Sets. Second part:

1.

Set A contains 8 elements, set B contains 24 elements, and 5 elements are common to sets A and B. How many elements are in $A \cup B$?

The number of elements in $A \cup B$ is **27**.

2.

Let: $U = \{1, 2, 3, \dots, 10\}$
 $A = \{5, 6, 7, 10\}$
 $B = \{1, 3, 5\}$
 $C = \{1, 2, 3, 4, 5\}$

Find the following set: $(A \cup B) \cap (A \cup C)$

$(A \cup B) \cap (A \cup C) =$

- A. $\{5,6,7,10\}$ B. $\{5,3,10\}$
 C. \emptyset D. $\{1,3,5,6,7,10\}$

3.

Let: $U = \{1, 2, 3, \dots, 7\}$
 $A = \{2, 3, 5, 7\}$
 $B = \{2, 4, 5\}$
 $C = \{1, 2, 3, 4, 5\}$

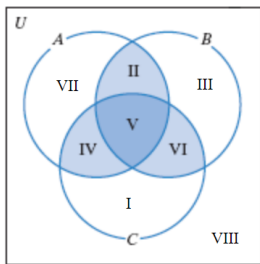
Find the following set: $A' \cap (B \cup C')$

$A' \cap (B \cup C') =$

- A. \emptyset B. $\{2,4,5\}$
 C. $\{2,5\}$ D. $\{4,6\}$

4.

Use the Venn diagram shown to answer the question below.



Which regions represent set A?

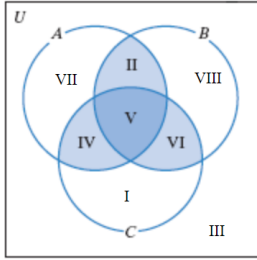
List the regions that represent set A.

VII,II,IV,V

(Type your answer using Roman numerals. Use a comma to separate answers as needed.)

5.

Use the Venn diagram shown to answer the question below.



Which regions represent set C' ?

List the regions that represent set C' .

VII,II,VIII,III

(Type your answer using Roman numerals. Use a comma to separate answers as needed.)

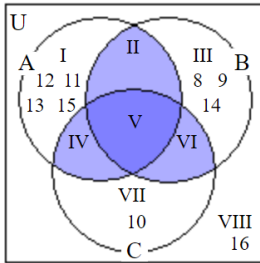
6.

Construct a Venn diagram illustrating the given sets.

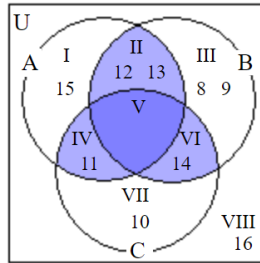
$A = \{11, 12, 13, 15\}$, $B = \{8, 9, 11, 12, 13, 14\}$,
 $C = \{10, 11, 14\}$, $U = \{8, 9, 10, 11, 12, 13, 14, 15, 16\}$

Find the Venn diagram that illustrates the given sets. Choose the correct answer below.

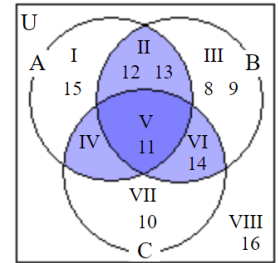
A.



B.



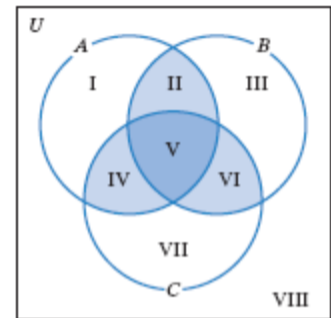
C.



7.

Use the Venn diagram shown to the right to answer the following questions.

- Which regions are represented by $B \cup (A \cap C)$?
- Which regions are represented by $B \cap (A \cup C)$?
- Based on parts (a) and (b), are $B \cup (A \cap C)$ and $B \cap (A \cup C)$ equal for all sets A and B?



a. Select the regions that represent $B \cup (A \cap C)$.

- A. IV,V
 B. II,III,V,VI
 C. II,IV,V,VI
 D. II,III,IV,V,VI

8.

A survey of 103 college students was taken to determine where they got the news about what's going on in the world. Of those surveyed, 48 got the news from newspapers, 42 from television, and 14 from both newspapers and television. Construct a Venn diagram and determine the cardinality for each region. Use the completed Venn Diagram to answer the following questions.

How many got the news from only newspapers?

$$n(\text{Newspapers only}) = 34$$

How many got the news from only television?

$$n(\text{Television only}) = 28$$

How many got the news from newspapers or television?

$$n(\text{Newspapers or Television}) = 76$$

How many did not get the news from either newspapers or television?

$$n(\text{Neither}) = 27$$

9.

A survey of 120 college students was taken to determine the musical styles they liked. Of those, 62 students listened to rock, 41 to classical, and 46 to jazz. Also, 33 students listened to rock and jazz, 29 to rock and classical, and 18 to classical and jazz. Finally, 16 students listened to all three musical styles. Construct a Venn diagram and determine the cardinality for each region. Use the completed Venn Diagram to answer the following questions.

a. How many listened to only rock music?

$$n(\text{only rock}) = 16$$

b. How many listened to classical and jazz, but not rock?

$$n(\text{classical and jazz, not rock}) = 2$$

c. How many listened to classical or jazz, but not rock?

$$n(\text{classical or jazz, not rock}) = 23$$

d. How many listened to music in exactly one of the musical styles?

$$n(\text{exactly one style}) = 37$$

e. How many listened to music in exactly two of the musical styles?

$$n(\text{exactly two styles}) = 32$$

f. How many did not listen to any of the musical styles?

$$n(\text{none}) = 35$$