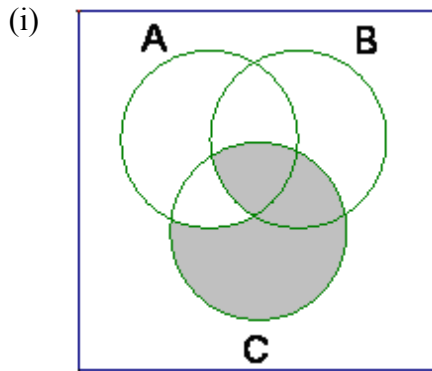
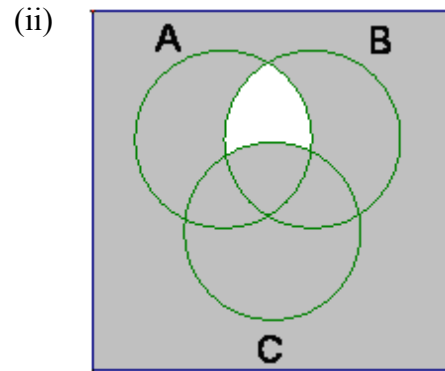


## Math 211 Sets Practice Worksheet--Answers

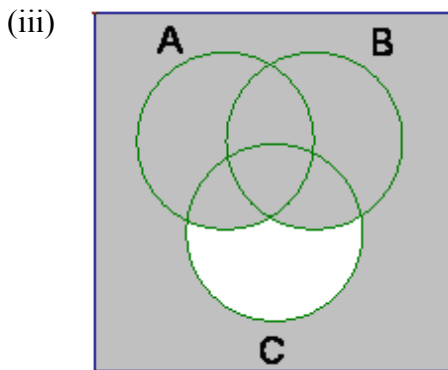
1. Shade the region of the Venn diagram indicated by the following sets.



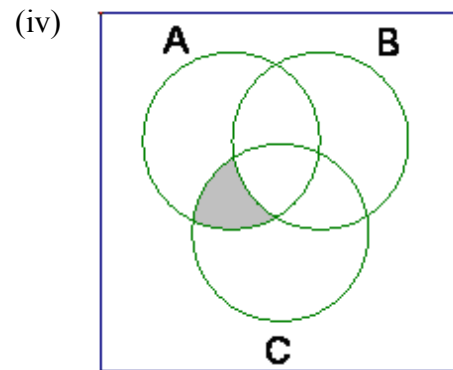
**Shade:**  $(A' \cup B) \cap C$



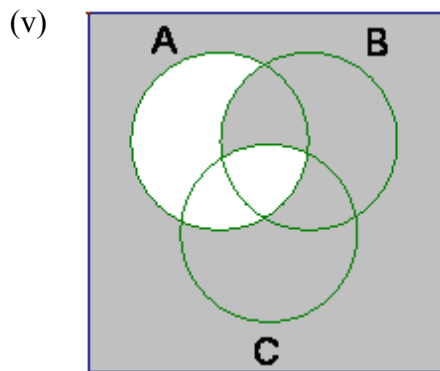
**Shade:**  $(A \cap B)' \cup C$



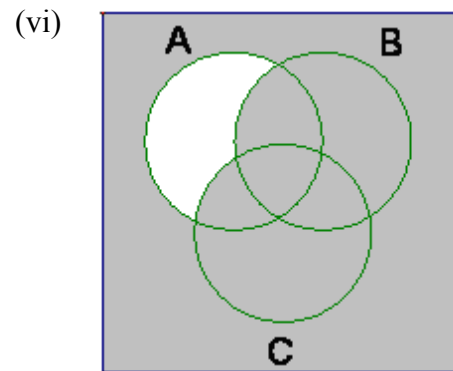
**Shade:**  $A \cup (C' \cup B)$



**Shade:**  $(A \cap B)' \cap C$



**Shade:**  $A' \cup (C' \cap B)$



**Shade:**  $(A \cap B)' \cup C$

## Math 211 Sets Practice Worksheet--Answers

2. List the elements in each of the following sets.

Let  $U = \{0,1,2,3,4,5,6,7,8,9,10\}$ ;  $A = \{0,1,2,3,5,8\}$ ;  $B = \{0,2,4,6\}$ ;  $C = \{1,3,5,7\}$

i)  $A \cup B = \{0, 1, 2, 3, 4, 5, 6, 8\}$

ii)  $B' = \{1, 3, 5, 7, 8, 9, 10\}$

iii)  $A \cap B' = \{1, 3, 5, 8\}$

Hint: List the elements in  $B'$  first

iv)  $B \cup C = \{0, 1, 2, 3, 4, 5, 6, 7\}$

v)  $B \cup C' = \{0, 2, 4, 6, 8, 9, 10\}$

Hint: list the elements of  $C'$  first

vi)  $A' \cup C = \{1, 3, 4, 5, 6, 7, 9, 10\}$

Hint: list the elements of  $A'$  first

vii)  $(A' \cap C) \cup B = \{0, 2, 4, 6, 7\}$

Hint: list the elements of  $A'$ , then  $A' \cap C$  first

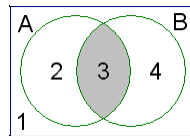
viii)  $(A \cup B)' = \{7, 9, 10\}$

ix)  $(A \cup C) \cap B = \{0, 2\}$

x) Write down a subset of  $A = \{0,1\}$

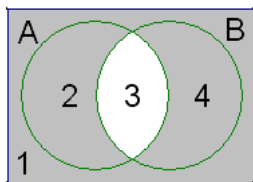
There are more – any set containing only elements that are also in  $A$

3. Refer to the diagram to answer the questions below. What set notation would you use to represent the following regions?



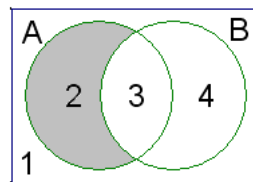
Example: Region 3 could be written as  $A \cap B$

i) Regions 1, 2 and 4 are all shaded



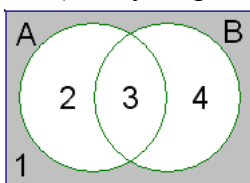
$(A \cap B)'$  or  $A' \cup B'$

ii) Only Region 2 is shaded.



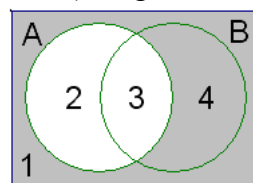
$A \cap B'$

iii) Only Region 1 is shaded.



$(A \cup B)'$  or  $A' \cap B'$

iv) Regions 1 and 4 are shaded.

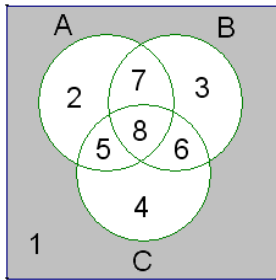


$A'$

**Math 211 Sets Practice Worksheet--Answers**

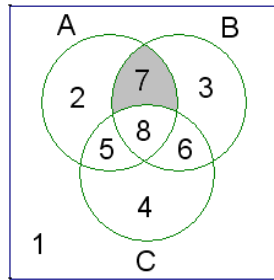
4. Refer to the diagram to answer the questions below.

i) Only Region 1 is shaded.



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

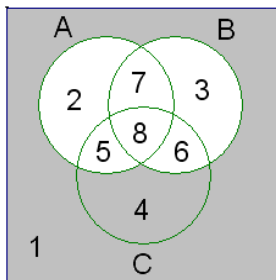
ii) Only Region 7 is shaded.



One possible answer

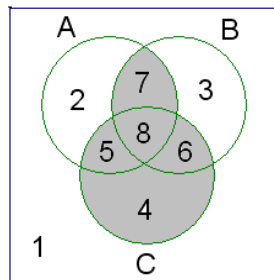
$(A \cap B) \cap C'$

iii) Regions 1 and 4 are shaded.



$(A \cup B)'$   
or  
 $A' \cap B'$

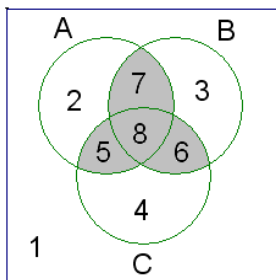
iv) Regions 4, 5, 6, 7 and 8 are shaded.



One possible answer

$(A \cap B) \cup C$

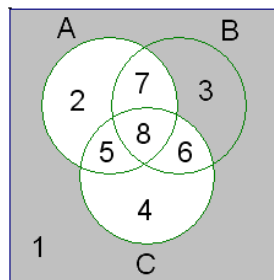
v) Regions 5, 6, 7 and 8 are shaded.



One possible answer

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

vi) Regions 1 and 3 are shaded.



One possible answer

$(A \cup C)'$   
or  
 $A' \cap C'$