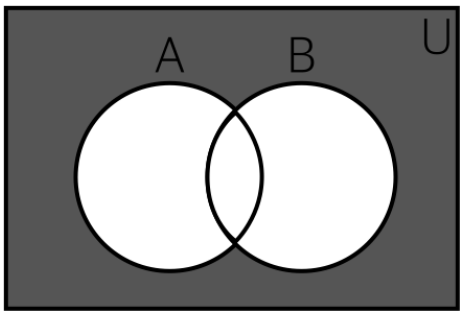
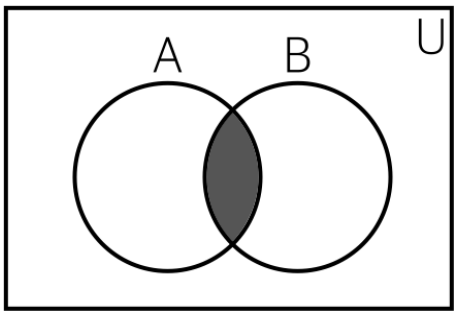
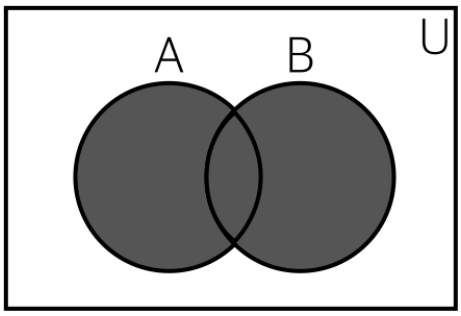
# Set Theory - Worksheet

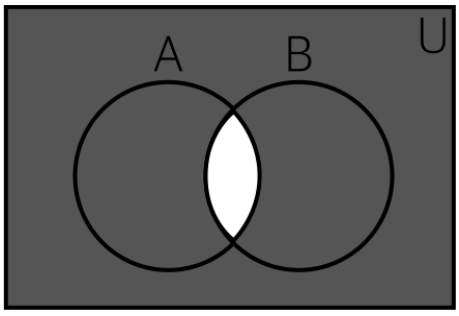
Lesson: Arithmetic

1) Which of the following shows the diagram of $(A \cap B)'$?

a. 


c. 


b. 


d. 

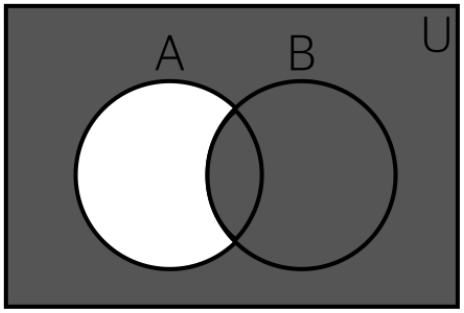

2) If A is the set {2, 3, 5, 6, 10, 12} and B is the set {1, 4, 7, 8, 9, 11}, determine $(A \cap B)$.

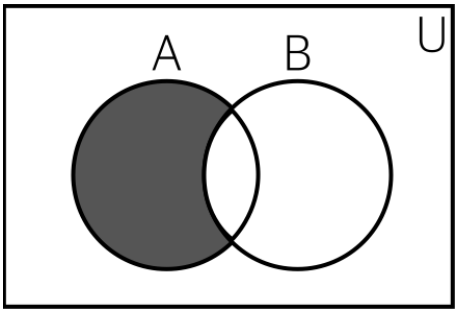
a. $\{1,\ 2,\ 3,\ 4,\ 5,\ 6,\ 7,\ 8,\ 9,\ 10,\ 11,\ 12\}$
b. $\{1,\ 3,\ 5,\ 7,\ 11\}$
c. $\{\}$
d. $\{2,\ 4,\ 6,\ 8,\ 10,\ 12\}$

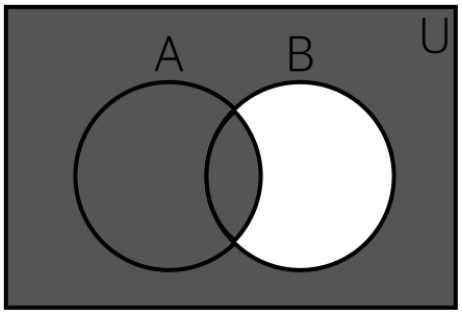
3) If A is the set of all odd integers (including negative ones), and B is the set of real numbers $x$ such that $5 \geq x \geq -5$, find $(A \cup B)$.

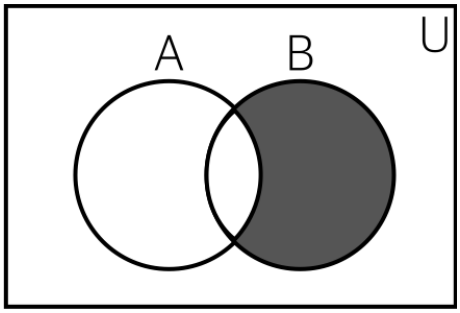
a. $[-5, 5]$
b. $\{\}$
c. $[-5,\ 0) \cup (0, 5]$
d. $\{-5, -3, -1, 1, 3, 5\}$

4) Which of the following is equivalent to $(A' \cup B)'$?

a. 


c. 


b. 


d. 


5) In a school, English and Filipino are the only courses for a required language subject. If there are 120 students in total, and 81 of those students take English, while 75 students take Filipino, find the number of students who are studying both English and Filipino if each student is required to take at least 1 course - either English or Filipino for their language subject.

a. 30 students
b. 36 students
c. 42 students
d. 48 students

6) In an ice cream shop, 500 people were surveyed for their preference of ice cream flavor - vanilla or strawberry. If 160 people said they prefer vanilla only and 240 people said they did not prefer one (flavor) to the other and each person likes at least one of the two flavors, find the number of people who prefer strawberry flavor only.

a. 120 people
b. 100 people
c. 160 people
d. 200 people

7) Let A and B be two finite sets such that $n(A) = 95$ and $n(B) = 155$. If $n(A \cup B) = 220$, find $n(A \cap B)$.

   a. 15
   b. 30
   c. 45
   d. 60

8) In a group of 150 athletes, 46 athletes said they are able to play badminton and 68 athletes said they are able to play tennis. If there are 40 people who play both badminton and tennis, find the number of people who do not play either sport.

   a. 46 people
   b. 50 people
   c. 76 people
   d. 80 people

9) In a science competition, a school awarded 40 different medals to 18 deserving students due to their outstanding performance in the fields of biology, chemistry, and physics. If there were 8 students who received medals on all 3 of those fields, how many people received medals in exactly 2 of those fields?

   a. 3 students
   b. 4 students
   c. 6 students
   d. 7 students

10) Each person in a group of 100 people likes at least one genre of music: hip-hop, pop, or jazz. 60 people like hip-hop, 50 people like pop, and 70 people like jazz. 32 people like both hip-hop and pop, 38 people like both pop and jazz, and 40 people like both hip-hop and jazz. Find the number of people who like all three genres.

   a. 18 people
   b. 20 people
   c. 30 people
   d. 38 people