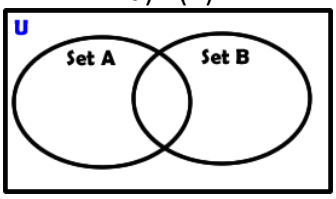
Geometry (HSS-CP.A.1) Name: _____

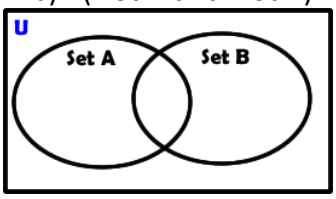
Unit Six: Probability – Day 2 – Venn Diagrams (HW3) Date: _____ Period: _____

1. Shade the following relationships in the Venn Diagrams below representing the relationship between Set A and Set B.

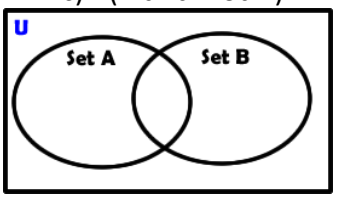
a) P(B)



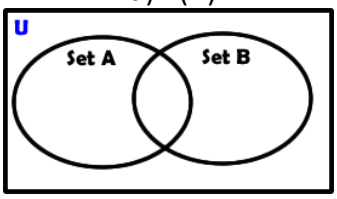
b) P(Not A **and** Not B)



c) P(B **and** Not A)



d) P(A)

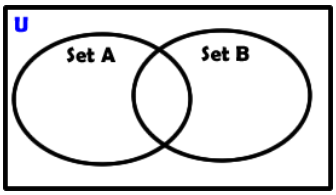


2. Place the values in the Venn diagram and determine the missing probability.

a) P(A **or** B) = 0.7

P(A) = 0.53,

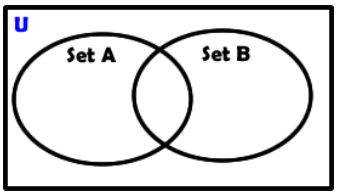
P(B **and** Not A) = _____



b) P(A **or** B) = 0.67

P(A **and** Not B) = 0.31

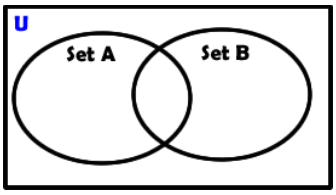
P(B) = _____



c) P(A **or** B) = 0.7

P(A) = 0.53, P(B) = 0.37

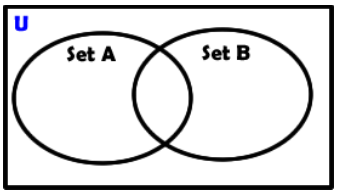
P(A **and** B) = _____



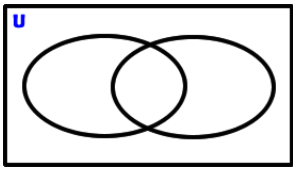
d) P(A **or** B) = 0.54

P(A) = 0.41, P(B) = 0.27

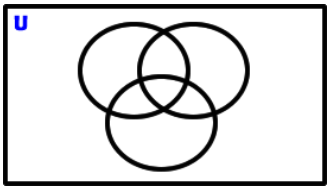
P(A **and** B) = _____



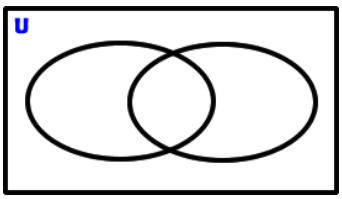
3. In a school of 300 students, 90 students are in the band, 185 students are on sports teams, and 60 students participate in both activities. How many students are involved in either band or sports?



4. A veterinarian surveys 26 of his patrons. He discovers that 14 have dogs, 10 have cats, and 5 have fish. Four have dogs and cats, 3 have dogs and fish, and one has a cat and fish. If no one has all three kinds of pets, how many patrons have none of these pets?



5. From a survey of 100 college students, a marketing research company found that 75 students owned stereos, 45 owned cars, and 35 owned cars and stereos.



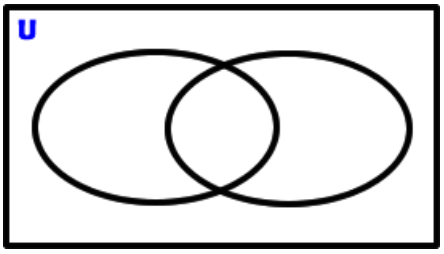
a) How many students owned either a car or a stereo? _____

b) How many students did not own either a car or a stereo? _____

6. In a class there are 38 students.

- **24 students like Math**
- **17 students like English**
- **8 students don't like Math or English**

How many students like both Math and English? _____



7. You roll a six sided die (D6) once. Set U is the outcomes of a single roll of the D6 = {1, 2, 3, 4, 5, 6}.

Event M = (3, 4) **Event H = (3, 4, 5, 6}**

a) Create the Venn Diagram

P (M **and** H) = _____ P (M **or** H) = _____

Shade the complement of P (M **or** H)

Event R = (1) **Event T = (5, 6}**

b) Create the Venn Diagram

P (R **and** T) = _____ P (R **or** T) = _____

Shade the complement of P (T **or** R) What is that probability? _____

Event X = (1, 2) **Event Y = (2, 3, 4)** **Event Z = (6)**

c) Create the Venn Diagram

P (X **and** Y) = _____ P (X **or** Y) = _____

Shade the complement of P (X **or** Y) P (Y **and** Z) = _____

8. Create the Venn diagram. If U, the Universal Set, represents the outcomes of rolling a D12.

Event A = Even Numbers **Event B = {2, 3, 4, 5, 6, 7}**

a) P (A) = _____

b) P (A and B) = P (A ∩ B) = _____

c) P (A or B) = P (A ∪ B) = _____

d) P (Not B) = _____

e) P (Not A and Not B) = _____