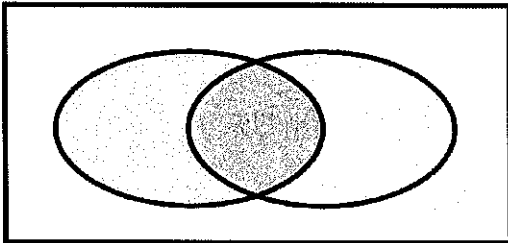


Advanced Algebra

Unit 7: Probability- Assignment #12 Venn Diagrams

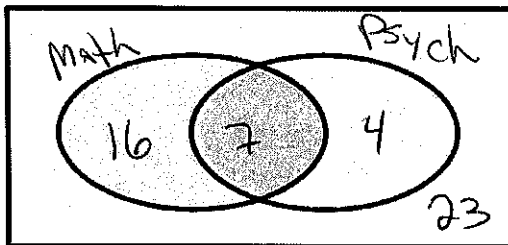
For the following, complete the Venn Diagram and then find values for a through d.

1. In a group of 25 Baboons, 18 enjoy grooming their neighbors, 16 enjoy screeching widely, and 10 enjoy grooming neighbors and screeching wildly.



- a. $P(A)$
 b. $P(B)$
 c. $P(A \cap B)$
 d. $P(A \cup B)$

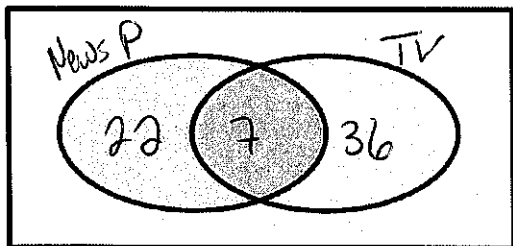
2. In a group of 50 students, 23 take Math, 11 take Psychology and 7 take both Math and Psychology.



- a. $P(A) \frac{23}{50}$
 b. $P(B) \frac{11}{50}$
 c. $P(A \cap B) \frac{7}{50}$
 d. $P(A \cup B) \frac{27}{50}$

$P(A|B) = \frac{7}{11}$
 $P(B|A) = \frac{7}{23}$

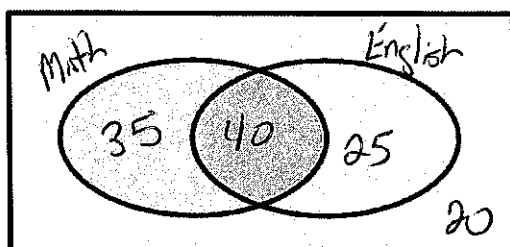
3. A survey of 75 college students was taken to determine where they got the news about what is going on in the world. 29 students got the news from newspapers, 43 from television, and 7 from both newspapers and television.



- a. $P(A) \frac{29}{75}$
 b. $P(B) \frac{43}{75}$
 c. $P(A \cap B) \frac{7}{75}$
 d. $P(A \cup B) \frac{65}{75}$

$P(A|B) = \frac{7}{43}$
 $P(B|A) = \frac{7}{29}$

4. A survey of 120 college students was taken at registration. Of those surveyed, 75 students registered for a math course, 65 for an English course and 40 for both math and English.



- a. $P(A) \frac{75}{120}$
 b. $P(B) \frac{65}{120}$
 c. $P(A \cap B) \frac{40}{120}$
 d. $P(A \cup B) \frac{100}{120}$

$P(A|B) = \frac{40}{65}$
 $P(B|A) = \frac{40}{75}$

5. A survey of 180 college men was taken to determine participation in various activities. 43 were in Frats, 52 were in sports, and 35 were in tutoring programs. 13 were in Frats and Sports. 14 were in Sports and tutoring. 12 were in Frats and Tutoring. Five were in all three.

a. Explain why the smiley face number makes sense.

b. Fill in the rest of the Venn diagram.

c. Find the probability that a randomly selected college man...

- Is in a frat.
- Is in a frat, but not in a sport or tutoring.
- Is in a sport and in tutoring.
- Is in a sport and in tutoring, but not in a frat.

d. Are all your answers to part c different? They should be. If they are not, read back through the questions and see if you can figure out where you went wrong.

$13 - 5 = 8$
 $14 - 5 = 9$

(i) $\frac{43}{180}$

(ii) $\frac{23}{180}$

(iii) $\frac{14}{180}$

(iv) $\frac{9}{18}$