Name _____ Date _____
Mr. Schlansky Algebra II

Probability of Conjunctions and Disjunctions

1. $P(A) = .27$, $P(B) = .36$ and $P(A \cap B) = .11$. Find $P(A \cup B)$.

2. $P(A) = .78$, $P(B) = .49$, and $P(A \cap B) = .31$. Find $P(A \cup B)$.

3. $P(A) = .61$, $P(B) = .42$, and $P(A \cup B) = .79$. Find $P(A \cap B)$.

4. $P(A) = .19$, $P(B) = .29$, and $P(A \cup B) = .36$. Find $P(A \cap B)$.

5. $P(A) = .25$, $P(B) = .12$, and events A and B are independent. Find $P(A \cap B)$.

6. $P(A) = .72$, $P(B) = .6$, and events A and B are independent. Find $P(A \cap B)$.

7. $P(A) = .4$, $P(A \cap B) = .25$, and events A and B are independent. Find $P(B)$.

8. $P(B) = .65$, $P(A \cap B) = .31$, and events A and B are independent. Find $P(A)$.

9. The probability of event A is 87%. The probability of event B is 70%. The probability of both events happened in 60%. What is the probability of event A or event B happens?

10. The probability of event A happening is 14% and the probability of event B happening is 18%, The probability that event A or event B happens is 20%. What is the probability that event A and event B happens?

11. Events A and B are independent of each other. If the probability of event A happening is 10% and the probability of event B happening is 28%, what is the probability of event A and event B happening?

12. Events A and B are independent of each other. If the probability of event A happening is 52% and the probability of event A and B happening is 23%, what is the probability of event B happening?

13. The probability that a student in Jacqua High School is in band is $\frac{127}{466}$ and the probability that a student is on the track team is $\frac{82}{466}$. If the probability that they are on the track team and in band is $\frac{74}{466}$, what is the probability that they are on the track team or in band?

14. The probability that a person files their tax return in March is $\frac{127}{165}$. The probability that a person watches College Basketball in March is $\frac{98}{123}$. If the probability that a person watches College Basketball and files their tax return in March is $\frac{62}{95}$, what is the probability that a person watches College Basketball or files their tax return? Round your answer to the nearest percent.

15. On a given school day, the probability that Nick oversleeps is 48% and the probability he has a pop quiz is 25%. Assuming these two events are independent, what is the probability that Nick oversleeps and has a pop quiz on the same day?

1) 73%
2) 36%
3) 23%
4) 12%

16. In 2015 at Sabres Prep Academy, the probability that a student passed Algebra II was 78%. The probability that a student passed Chemistry was 86%. The probability they passed Algebra II or Chemistry was 88%. What is the probability that they passed Algebra II and Chemistry?

17. The probability that Chloe the cardinal shows up in the Schlansky's backyard is $\frac{12}{19}$. The probability that Chloe shows up in the Silverman's backyard is $\frac{10}{17}$. If the probability that Chloe shows up in the Schlansky's backyard or the Silverman's backyard is $\frac{12}{16}$, what is the probability that Chloe shows up in both backyards?

18. There are 24 students in a math class. 15 of them play a sport and 20 of them play an instrument. 22 play a sport or play an instrument. What is the probability that a student chosen at random will play a sport and play an instrument?

19. Over the past 30 nights, Baxter barked 8 nights and cried 15 nights. He barked or cried 11 nights. How many nights did he bark and cry?

20. Suppose events A and B are independent and $P(A \text{ and } B)$ is 0.2. Which statement could be true?

1) $P(A) = 0.4, P(B) = 0.3, P(A \text{ or } B) = 0.5$
2) $P(A) = 0.8, P(B) = 0.25$
3) $P(A|B) = 0.2, P(B) = 0.2$
4) $P(A) = 0.15, P(B) = 0.05$