| | PIAUB)=P(A)+P(B)-P | O(MB) |
|---------------|----------------------|------------|
| Calarda. | P(A)B) = P(A)+P(B) - | Pravoj |
| Name () | If independent (CS) | Date |
| Mr. Schlänsky | PLANBI=PLAN-PCB) | Algebra II |

Probability of Conjunctions and Disjunctions

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

$$\rho(AUB) = \rho(A) + \rho(B) - \rho(ANB) = .11.11$$

 $\rho(AUB) = \rho(A) + \rho(B) - \rho(ANB)$
 $\rho(AUB) = .20 + .36 - .11$

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 $P(A \cap B)$.

$$\rho(A) = .61, P(B) = .42, \text{ and } P(A \cup B) = .75$$

$$\rho(A) = \rho(A) + \rho(B) - \rho(A \cup B)$$

$$\rho(A) = .61 + \rho(B) - \rho(A \cup B) = .75$$

$$\rho(A) = .61 + \rho(B) - \rho(A \cup B) = .75$$

$$\rho(A) = .61 + \rho(B) - \rho(A \cup B) = .75$$

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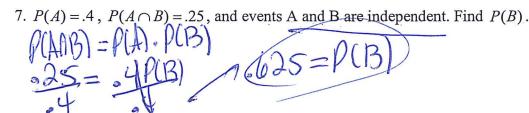
$$\rho(A) = .61 + \rho(B) - \rho(A \cup B) = .75$$

$$\rho(A) = .61 + \rho(B) - \rho(A \cup B) = .75$$

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

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 $P(A \cap B)$.



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?

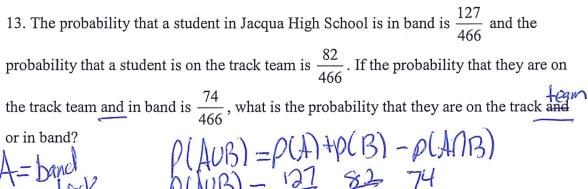
11. Events A and B are independent of each other. If the probability of event A happening is 10% and the probability of event B happening is 28%, what is the probability of event A and event B happening?

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?

(A) = $\rho(A) - \rho(B)$

$$\rho(AB) = \rho(A) \cdot \rho(B)$$

 $0.23 = 0.52 \rho(B)$
 $0.52 = 0.52 \rho(B)$
 $0.4423 = \rho(B)$



or in band?

$$A=band$$

 $B=track$
 $P(AUB) = P(A)+P(B) - P(ANB)$
 $P(AUB) = \frac{127}{466} + \frac{82}{466} - \frac{74}{466}$
 $P(AUB) = \frac{135}{466}$

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.

$$\rho(AUB) = \rho(A) + \rho(B) - \rho(A) + \rho(B)$$

$$\rho(AUB) = \frac{127}{165} + \frac{98}{123} - \frac{62}{95}$$

$$\rho(AUB) = .9138 - (100) = 917$$

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%

1) 73%

2) 36%

1) $\rho(A)B = \rho(A) \rho(B)$ 3) 23%

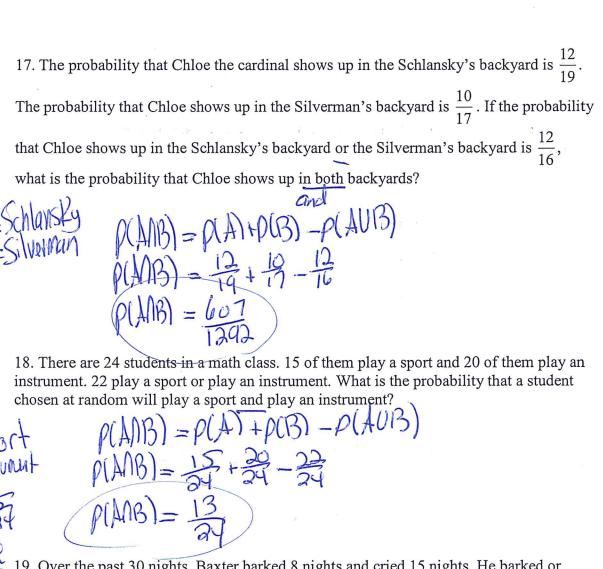
2) 36%

1) $\rho(A)B = \rho(A) \rho(B)$

1) 73%
$$\rho(AB) = \rho(A) \cdot \rho(B)$$
 3) 23%
 $\rho(AB) = .48 \cdot .25$ 4) 12%
 $\rho(AB) = .12$

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 did not pass 2(MB) = P(A) +P(B)-P(AUB) not P(ANB)=1-P(MB) Algebra II and Chemistry?

$$\rho(A)B) = \rho(A) + \rho(B) - \rho(A)B)$$
 $\rho(A)B) = .76 + .86 - .88$
 $\rho(A)B) = .76$
 $\rho(A)B) = .76$
 $\rho(A)B) = .76$



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) $P(A) = 0.15$, $P(B) = 0.05$

$$p(A)B) = p(A) \cdot p(B)$$

$$-2 = p(A) \cdot p(B)$$