**Probability Comparison Worksheet**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Instructions**
For each question, write "<" or ">" or "=" to compare the two probabilities.

 **Questions**

1. **P(A ∪ B)** [ ] **P(A) + P(B)**

2. **P(A ∩ B)** [ ] **P(A) ⋅ P(B)**

3. **P(A | B)** [ ]

4. **P(A')** [ ] **1 - P(A)**

5. **P(A ∪ B)** [ ] **P(A) + P(B) - P(A ∩ B)**

6. **P(A ∩ B')** [ ] **P(A) - P(A ∩ B)**

7. **P(A ∩ B)** [ ] **P(B ∩ A)**

8. **P(A ∪ B ∪ C)** [ ] **P(A) + P(B) + P(C) - P(A ∩ B) - P(B ∩ C) - P(A ∩ C) + P(A ∩ B ∩ C)**

9. **P(A ∩ (B ∪ C))** [ ] **P((A ∩ B) ∪ (A ∩ C))**

10. **P(A | B)** [ ] **P(A)**

11. **P(A ∩ B | C)** [ ] **P(A | C) ⋅ P(B | C)**

12. **P(A ∪ B)** [ ] **P(A)**

13. **P(A ∩ B)** [ ] **P(A)**

14. **P(A ∪ B)** [ ] **P(B)**

15. **P(A ∩ B)** [ ] **P(B)**

16. **P(A ∪ B | C)** [ ] **P(A | C) + P(B | C) - P(A ∩ B | C)**

17. **P(A ∩ B')** [ ] **P(A) ⋅ P(B')**

18. **P(A ∪ B')** [ ] **P(A) + P(B') - P(A ∩ B')**

19. **P(A ∩ (B ∩ C))** [ ] **(P(A ∩ B) ∩ C)**

20. **P(A ∪ (B ∪ C))** [ ] **P(A) + P(B ∪ C) - P(A ∩ (B ∪ C))**

**Probability Comparison Worksheet - Answers**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Instructions**
For each question, write "<" or ">" or "=" to compare the two probabilities.

 **Questions**

1. **P(A ∪ B)** [ **=** ] **P(A) + P(B)**

2. **P(A ∩ B)** [ **=** ] **P(A) ⋅ P(B)**

3. **P(A | B)** [ **=** ]

4. **P(A')** [ **=** ] **1 - P(A)**

5. **P(A ∪ B)** [ **=** ] **P(A) + P(B) - P(A ∩ B)**

6. **P(A ∩ B')** [ **=** ] **P(A) - P(A ∩ B)**

7. **P(A ∩ B)** [ **=** ] **P(B ∩ A)**

8. **P(A ∪ B ∪ C)** [ **=** ] **P(A) + P(B) + P(C) - P(A ∩ B) - P(B ∩ C) - P(A ∩ C) + P(A ∩ B ∩ C)**

9. **P(A ∩ (B ∪ C))** [ **=** ] **P((A ∩ B) ∪ (A ∩ C))**

10. **P(A | B)** [ **<** ] **P(A)**

11. **P(A ∩ B | C)** [ **=** ] **P(A | C) ⋅ P(B | C)**

12. **P(A ∪ B)** [ **>** ] **P(A)**

13. **P(A ∩ B)** [ **<** ] **P(A)**

14. **P(A ∪ B)** [ **>** ] **P(B)**

15. **P(A ∩ B)** [ **<** ] **P(B)**

16. **P(A ∪ B | C)** [ **=** ] **P(A | C) + P(B | C) - P(A ∩ B | C)**

17. **P(A ∩ B')** [ **=** ] **P(A) ⋅ P(B')**

18. **P(A ∪ B')** [ **=** ] **P(A) + P(B') - P(A ∩ B')**

19. **P(A ∩ (B ∩ C))** [ **=** ] **(P(A ∩ B) ∩ C)**

20. **P(A ∪ (B ∪ C))** [ **=** ] **P(A) + P(B ∪ C) - P(A ∩ (B ∪ C))**