

**AP Computer Science  
Truth Tables Exercises**

**NAME** \_\_\_\_\_

**In each of the following exercises use truth tables to determine if the given Boolean expressions are *equivalent* or *not equivalent*.**

1.  $A \text{ and } (A \text{ or } B) \leftrightarrow A$

2.  $A \text{ or } (\sim A \text{ and } B) \leftrightarrow A \text{ or } B$

3.  $A \text{ and } (B \text{ or } C) \leftrightarrow (A \text{ and } B) \text{ or } (A \text{ and } C)$

4.  $A \text{ or } (B \text{ and } C) \leftrightarrow (A \text{ or } B) \text{ and } (A \text{ or } C)$

5.  $\sim(A \text{ and } B) \leftrightarrow \sim A \text{ or } \sim B$

6.  $A \text{ or } (A \text{ and } B) \leftrightarrow A$

7.  $A \text{ or } (\sim A \text{ and } B) \leftrightarrow \sim(A \text{ and } B)$

8.  $(A \text{ or } B) \text{ and } (A \text{ and } B) \leftrightarrow (A \text{ and } B) \text{ or } (A \text{ or } B)$

9.  $\sim(A \text{ or } B \text{ or } C) \leftrightarrow \sim A \text{ and } \sim B \text{ and } \sim C$

10.  $(A \text{ and } B) \text{ and } C \leftrightarrow A \text{ and } (B \text{ and } C)$