1. Let $R1$ and $R2$ be two 4-bit registers that store numbers in 2's complement form. For the operation $R1 + R2$, which one of the following values of $R1$ and $R2$ gives an arithmetic overflow?

    (a) $R1 = 1011$ and $R2 = 1110$

    (b) $R1 = 1100$ and $R2 = 1010$

    (c) $R1 = 0011$ and $R2 = 0100$

    (d) $R1 = 1001$ and $R2 = 1111$