Problem 1 - Dependence Analysis

Give the direction vectors, and if possible the distance vectors for all dependences in the following loop nests. State explicitly whether a dependence is a true, anti, output, or input dependence.

1. do i = 3, 100
   \[ a(i) = a(i-1) + a(i+1) + a(i-2) \]
   enddo

2. do i = 1, 100
   \[ a(2*i) = a(2*i-1) + a(2*i+1) \]
   enddo

3. do i = 1, 10
   \[ a(i) = a(5) + a(i) \]
   enddo

4. do i = 1, 10
   \[ a(10-i) = a(5) + a(i) \]
   enddo