2)

Diffie-Hellman assumption (DHA) - given $g, g^a \; and \; g^b$, it is computationally infeasible to determine g^{ab}.

discrete logarithm assumption (DLA)- given $g \; and \; g^a$, it is computationally infeasible to determine a

In a scenario where DLA does not hold, we can trivially break DHA in the following ways:

Given A' where g^{a2} can be calculated with g and g^a, a is determined. g^{a2} can be calculated by $a * g^a$. DHA is also broken as g^{ab} can be calculated efficiently where g^{ab} is calculated by $g^a * g^b$. Since DLA is similar to DHA, given A' that can calculate a or b given g^a or g^b respectively, DHA is trivial broken. Hence, the square DHA would not hold either. Thus, by contrapostive, square DHA is equivalent to DHA