1) If every NP-hard language is in PSPACE-hard then NP $\subseteq$ PSPACE. This also would mean SAT is PSPACE-hard, Since SAT is in NP-hard it must be in PSPACE. Since SAT is PSPACE-hard & in PSPACE, it is PSPACE-complete. Since it is PSPACE-complete all PSPACE languages can be reduced to SAT. Since SAT is in NP, PSPACE $\subseteq$ NP. If NP $\subseteq$ PSPACE and PSPACE $\subseteq$ NP

NP = PSPACE.

2) An LBA is defined using the 8-tuple $(Q, X, \Sigma, q_0, M_L, M_R, q_f, \delta)$ where:

Q = finite set of states
X = tape alphabet
Σ = input alphabet
M_L = left end marker
M_R = right end marker
q_0 = initial state
q_f = final states
δ = transition function

$A_{LBA} = \{\langle M, w\rangle$ M is an LBA that accepts w $\}$

The maximum amount of [redacted] LBA configurations is $|Q| \cdot |w| \cdot |X|^{|w|}$. This means we can solve A_{LBA} in polynomial space. Therefore $A_{LBA} \in$ PSPACE. Now we will reduce a language L in PSPACE to A_{LBA} to show it is PSPACE-hard. Since A_{LBA} is in PSPACE & PSPACE-hard. A_{LBA} is PSPACE-complete