Quiz 1)

1) $\langle a| = (a_1^*, a_2^*)$

$\langle b| = (b_1^*, b_2^*) \rightarrow |b\rangle = \begin{pmatrix} b_1 \\ b_2 \end{pmatrix}$

Thus $\langle a|b\rangle = (a_1^*, a_2^*)\begin{pmatrix} b_1 \\ b_2 \end{pmatrix} = \boxed{a_1^* b_1 + a_2^* b_2}$

inner product

2) For computer A; 23 qbits represents 2^{23} classical bits (0 & 1)

B, 35 qubits ——— 2^{35} ———

Thus; computer B is able to store $\frac{2^{35}}{2^{23}} = 2^{12} \simeq 4096$ bits

→ So C_B has 4096x computational power to C_A