Q1

$$A = \{0, 1\}$$
 $B = \{2, 3\}$
1. $P(A) = \{\emptyset, \{0\}, \{1\}, \{0, 1\}\}$
 $2. \uparrow (B) = \{\emptyset, \{2\}, \{3\}, \{2, 3\}\}$

3.
$$P(A) \times P(B) = \{(0,2),(0,3),(1,2),(1,3)\}$$

$$|A| = h |B| = m$$

$$|P(A) \times P(B)| = |P(A)| \times |P(B)|$$

$$= 2^{|A|} \times 2^{|B|}$$

$$= 2^{|A| + |B|}$$

$$= 2^{h + m}$$