

let

$$A = \{1, \{2, 3\}, 4\} \quad \text{true/false} \quad 2^3 = 8$$

- a) $3 \in A$ false $P(A) = \{\emptyset, \{1\}, \{2, 3\}, \{4\}, \{1, 4\}, \{1, \{2, 3\}\}, \{2, 3, 4\}, \{1, 2, 3, 4\}\}$
- b) $\{1, 4\} \subseteq A$ true
- c) $\{2, 3\} \subseteq A$ false
- d) $\{2, 3\} \in A$ true
- e) $\{4\} \in A$ true
- f) $\{1, 2, 3\} \subseteq A$ true

2. Given $B = \{1, 2, 5, 8, 11\}$, determine whether each of the following statement true/false.

- (a) $\{5, 11\} \subseteq B$ true
- (b) $\{2, 11\} \in B$ true
- (c) $\{1, 8, 2, 11, 5\} \not\subseteq B$ false
- (d) $\emptyset \subseteq B$ true
- (e) $\{1, 6\} \not\subseteq B$ true
- (f) $\{2\} \subseteq B$ true
- (g) $\{3\} \in B$ false
- (h) $B \subseteq \{11, 2, 5, 1, 8, 4\}$ true

3. If $X = \{1, 3, 6, 7, 9\}$

(a) $|X| = 5$

(b) Proper subset of X $2^5 - 1 = 31$

(c) $P(X) = \{\emptyset, \{1\}, \{3\}, \{6\}, \{7\}, \{9\}, \{1, 3\}, \{1, 6\}, \{1, 7\}, \{1, 9\}, \{3, 6\}, \{3, 7\}, \{3, 9\}, \{6, 7\}, \{6, 9\}, \{1, 3, 6\}, \{1, 3, 7\}, \{1, 3, 9\}, \{1, 6, 7\}, \{1, 6, 9\}, \{1, 7, 9\}, \{3, 6, 7\}, \{3, 6, 9\}, \{3, 7, 9\}, \{6, 7, 9\}, \{1, 3, 6, 7\}, \{1, 3, 6, 9\}, \{1, 6, 7, 9\}, \{1, 3, 7, 9\}, \{3, 6, 7, 9\}, \{1, 3, 6, 7, 9\}\}$

$\{3, 6, 7, 9\}, \{1, 3, 6, 7, 9\}$

(d) $|P(X)| = 2^5$ DATE: _____

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If A is a set with seven elements, $|P(A)| = ?$

$$\text{find } |P(A)| = 2^7 = 128$$