

$$\{3\} \in \mathcal{P}(\{1, 2, 3, 4, 5\})$$

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$$\{3\} \subseteq \mathcal{P}(\{1, 2, 3, 4, 5\})$$

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$$a \in A \text{ iff } \{a\} \in \mathcal{P}(A)$$

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$$a \in A \text{ iff } \{a\} \subseteq \mathcal{P}(A)$$

$$A \subseteq B \text{ iff } A \in \mathcal{P}(B)$$

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$$\{A\} \subseteq \mathcal{P}(A)$$

$$A \in \mathcal{P}(A)$$

$$\{A\} \in \mathcal{P}(A)$$

$$\mathbb{Z} \in \mathcal{P}(\mathbb{R})$$

$$\emptyset = \mathcal{P}(\emptyset)$$