

Flowchart forms for using/proving $x \in S$

	Using $x \in S$	Proving $x \in S$
$S = \{a, b, c, d, \dots\}$ Roster method	<pre> graph TD A["x ∈ S."] --> B["(x = a) ∨ (x = b) ∨ (x = c) ∨ (x = d) ∨ ..."] </pre>	<pre> graph TD A["x = a"] --> B["x ∈ S"] C["x = b"] --> D["x ∈ S"] E["x = c"] --> F["x ∈ S"] G["x = d"] --> H["x ∈ S"] I["..."] </pre>
$S = \{z \in T : P(z)\}$ Set-builder notation	<pre> graph TD A["x ∈ S"] --> B["x ∈ T"] A --> C["P(x)"] </pre>	<pre> graph TD A["x ∈ T"] --> B["x ∈ S"] C["P(x)"] --> B </pre>
$S = \{f(c) : c \in R\}$ Rewrite: $S = \{z : \exists c \in R \text{ s.t. } z = f(c)\}$ Gather using “running set” R	<pre> graph TD A["x ∈ S"] --> B["∃c ∈ R such that x = f(c)"] </pre>	<pre> graph TD A["∃c ∈ R such that x = f(c)"] --> B["x ∈ S"] </pre>