# 1.1.1 <br> Exercise solved in detail 

## Exercise

Answer the following questions taking $\Sigma=\{0,1\}$.
(1) What is $\Sigma^{0}$ ?
(2) How many elements are there in $\Sigma^{3}$ ?
(3) How many elements are there in $\sum^{n}$ ?
(1) What is the length of the longest string in $\Sigma$ ?
(3) Does $\Sigma^{*}$ have strings of infinite length?
(0) If $|\boldsymbol{u}|=2$ and $|\boldsymbol{v}|=3$ then what is $|u \cdot v|$ ?
© Let $u$ be an arbitrary string in $\Sigma^{*}$. What is $\epsilon \boldsymbol{u}$ ? What is $u \in$ ?
© Is $u v=v u$ for every $u, v \in \Sigma^{*}$ ?
(0) Is $(u v) w=u(v w)$ for every $u, v, w \in \Sigma^{*}$ ?

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(7) Let $\boldsymbol{u}$ be an arbitrary string in $\Sigma^{*}$. What is $\boldsymbol{\epsilon} \boldsymbol{u}$ ? What is $\boldsymbol{u} \boldsymbol{\epsilon}$ ?
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## THE END

## (for now)

