$f(x) \leq g(x)$꼴의 부등식을 그래프로 풀기

$(\{x \mid f(x) \leq g(x)\} = \{x \mid f(x) \leq y \leq g(x)\})$

$\{x \mid f(x) \leq g(x)\} = \{x \mid f(x) \leq y \leq g(x)\}$

Start

Start

$$f(x) \leq g(x)$$

Start

$$f(x) \le g(x)$$

$$f(x) \le y \le g(x)$$

Start

$$f(x) \le g(x)$$

$$f(x) \le y \le g(x)$$

Start

$$f(x) \le g(x)$$

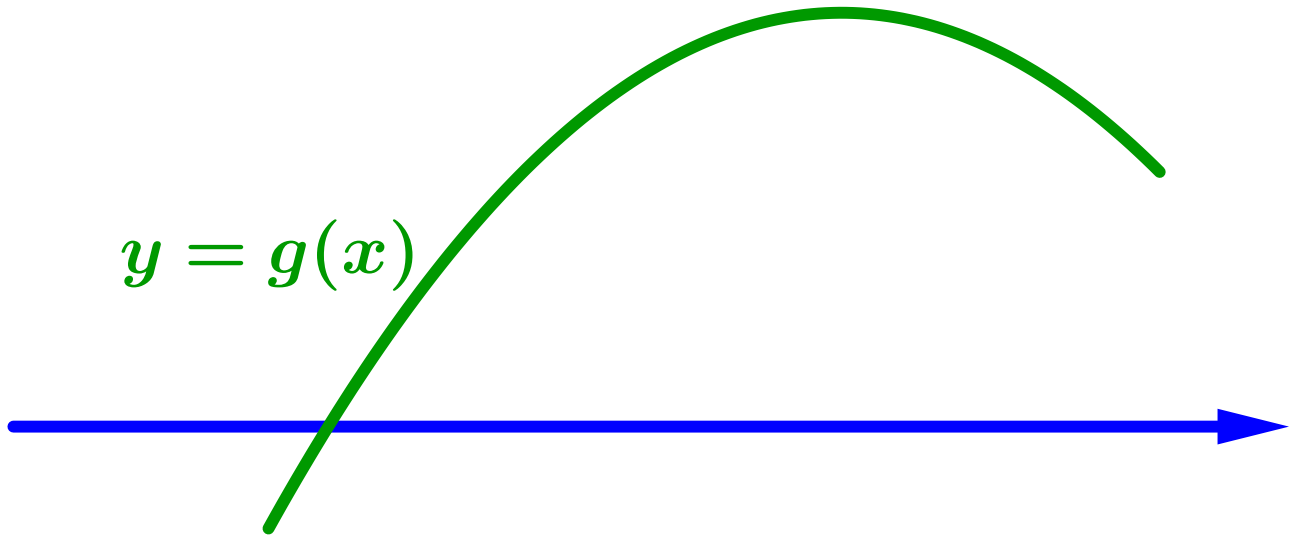
$$f(x) \le y \le g(x)$$

$$y = g(x)$$

Start

$$f(x) \le g(x)$$

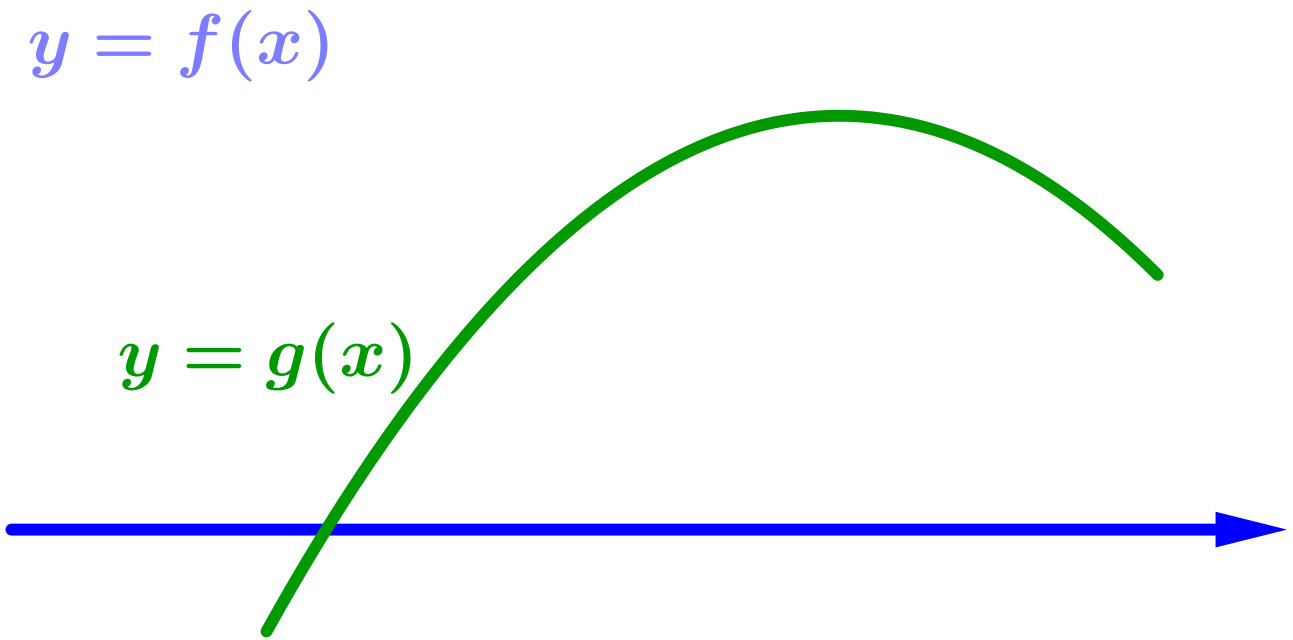
$$f(x) \le y \le g(x)$$



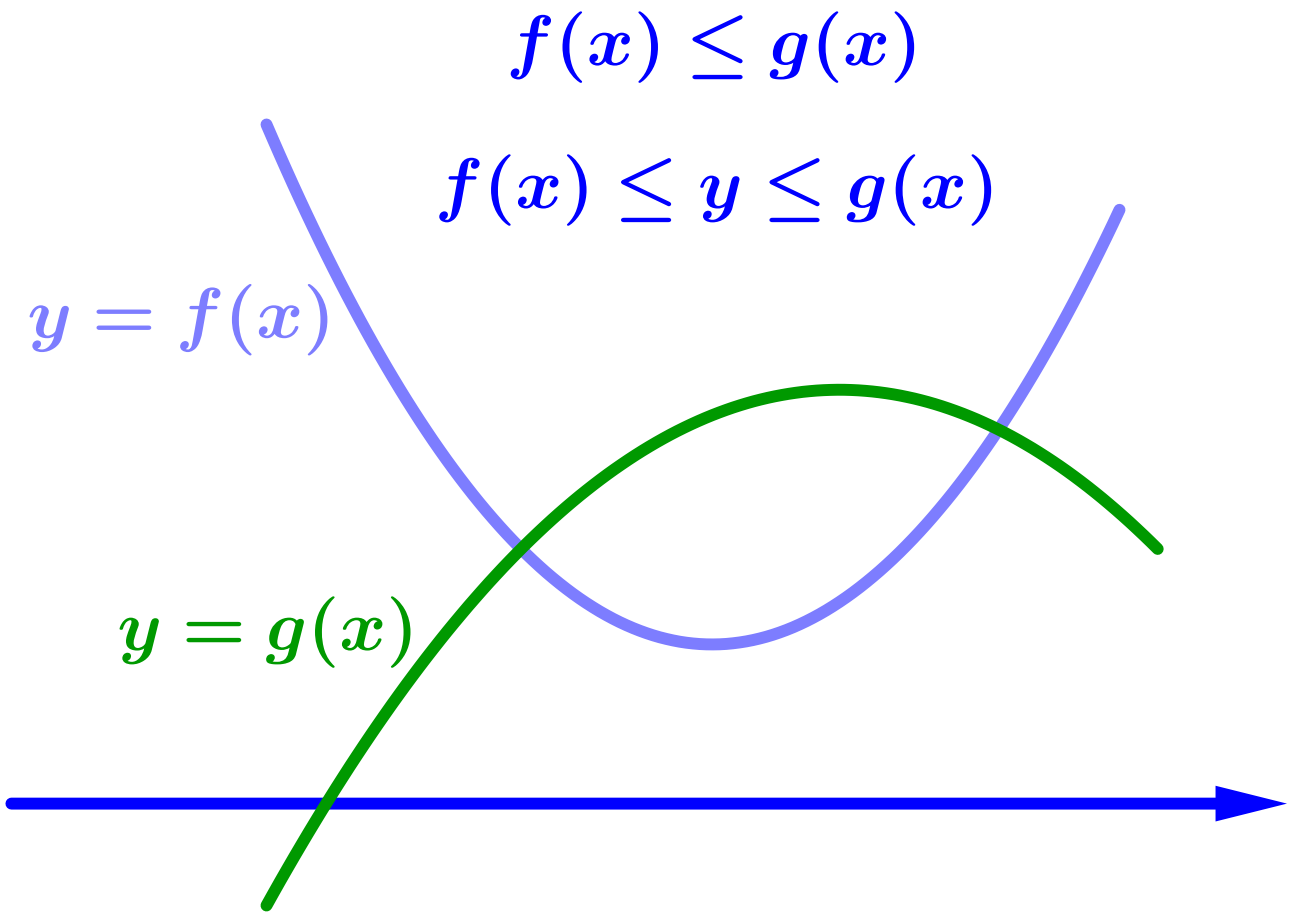
Start

$$f(x) \le g(x)$$

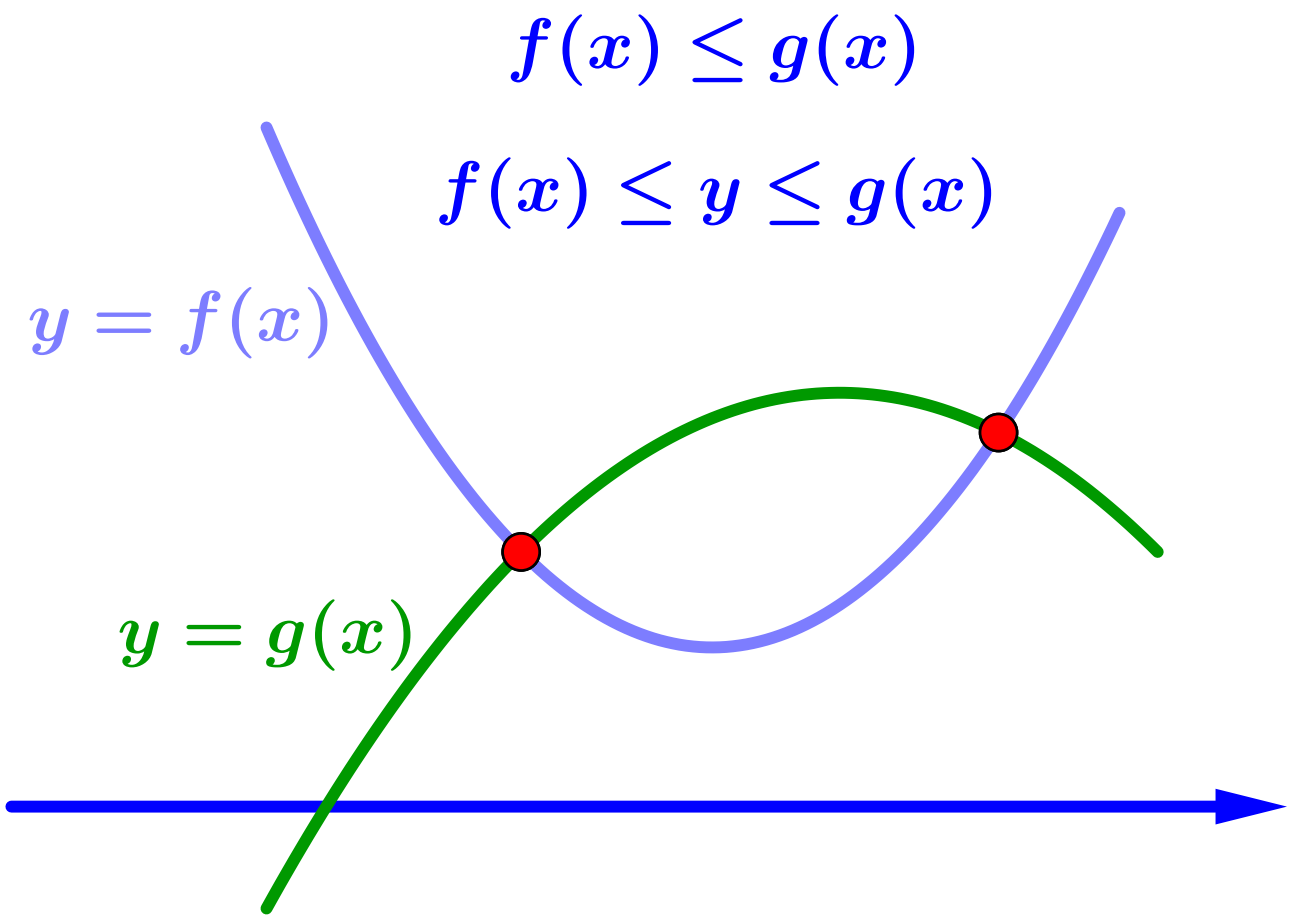
$$f(x) \le y \le g(x)$$



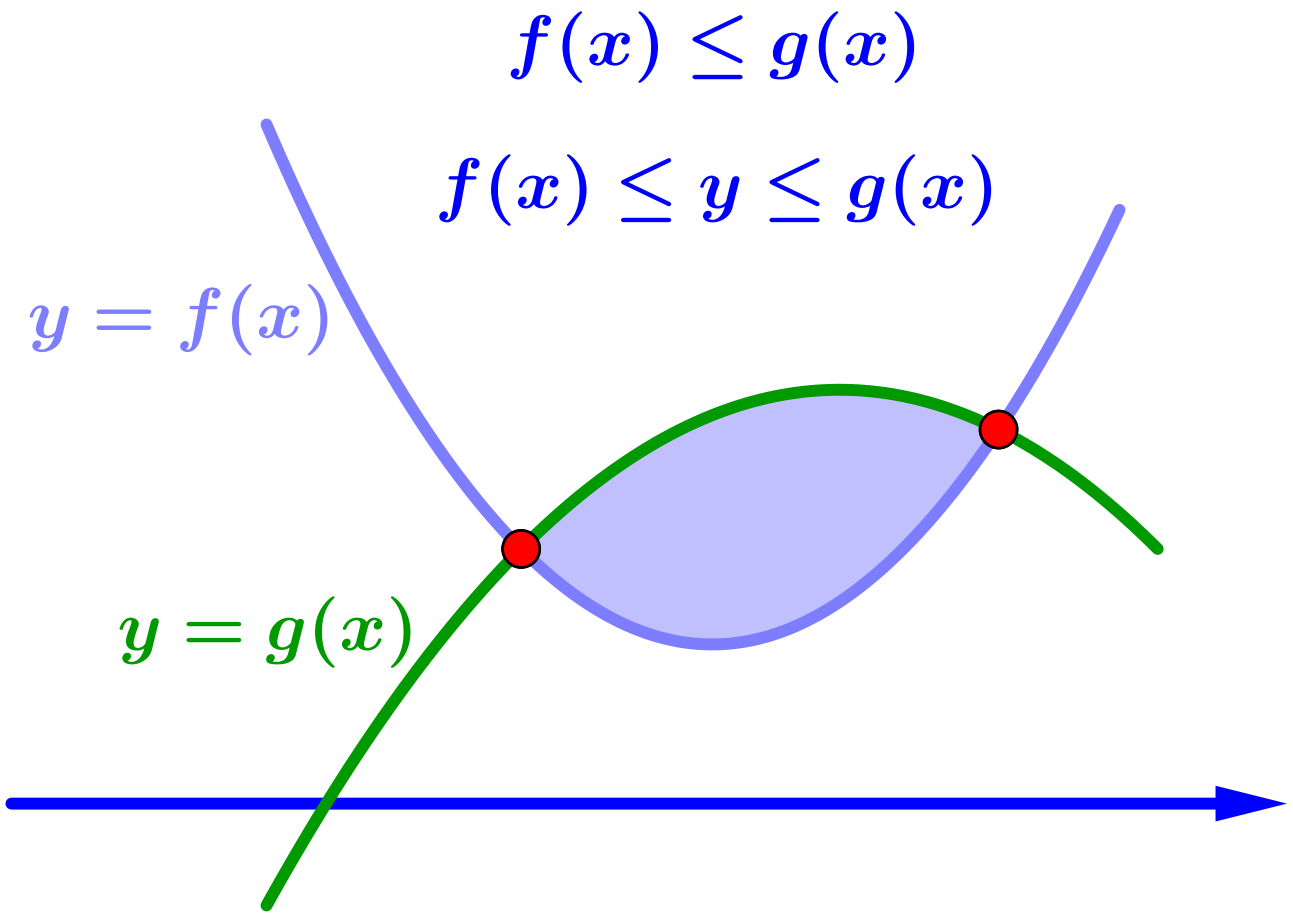
Start



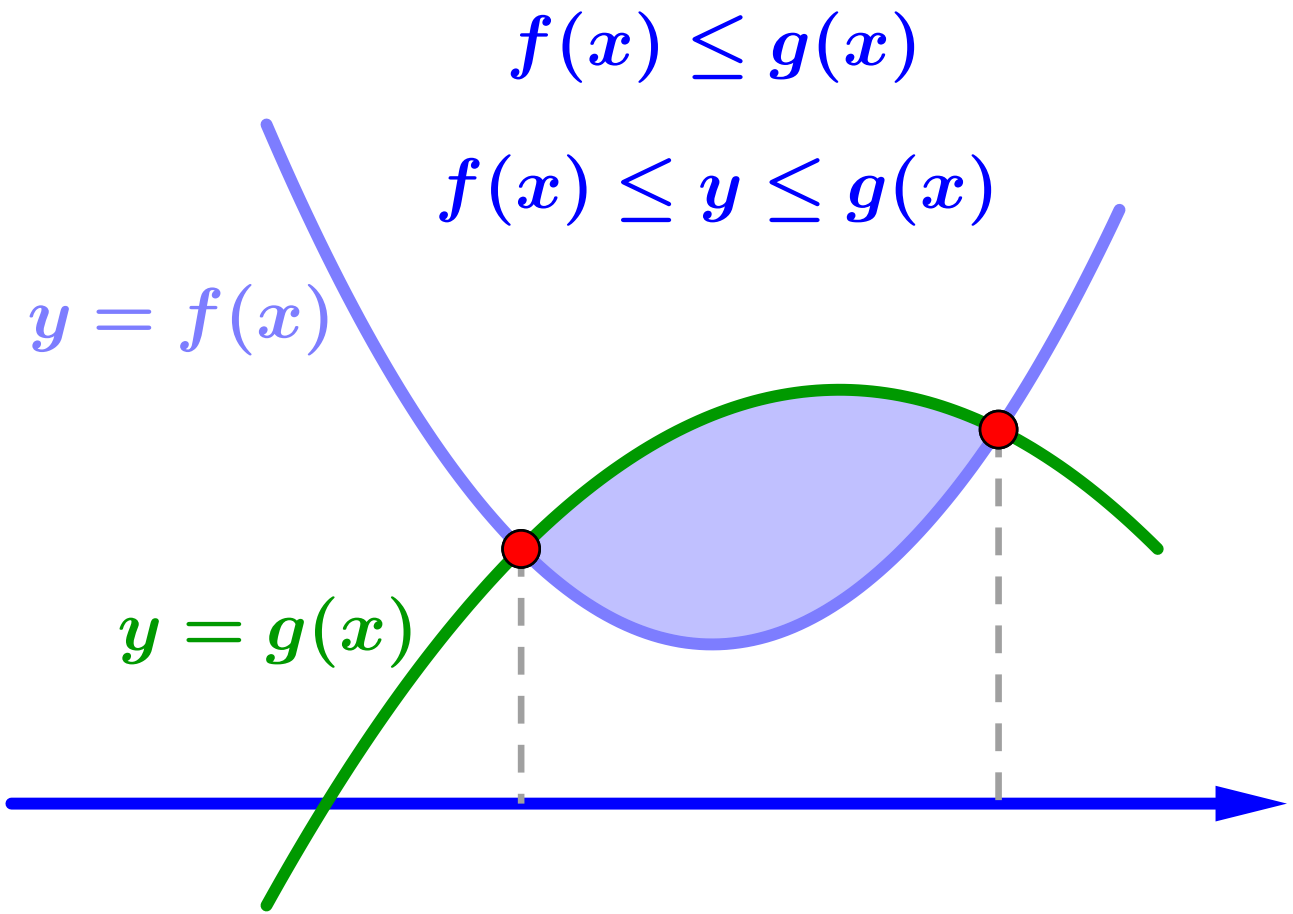
Start



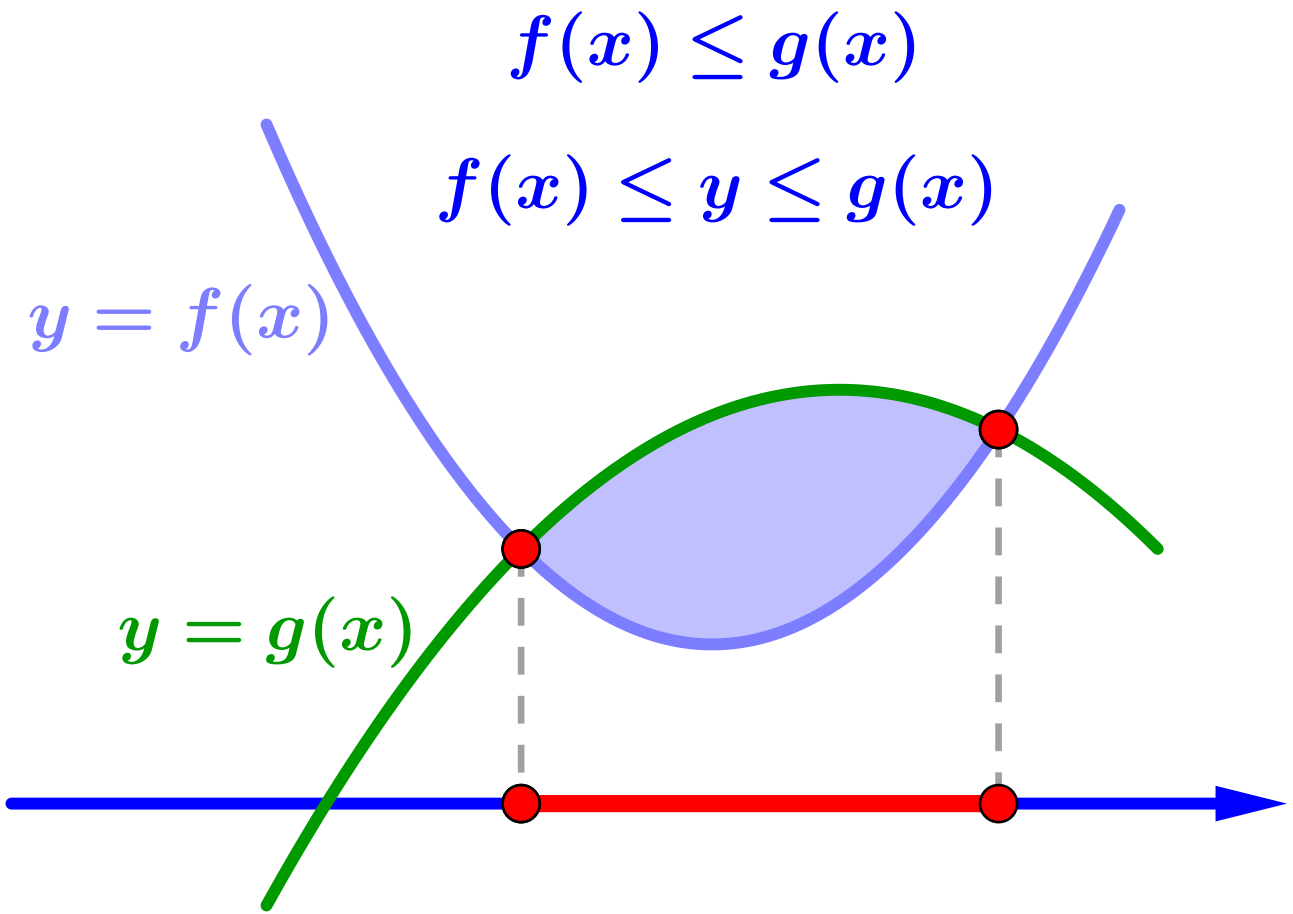
Start



Start



Start



$\{x \mid f(x) \leq g(x)\} = \{x \mid f(x) \leq y \leq g(x)\}$

Start

Start

$$x_0 \in \{x \mid f(x) \leq g(x)\}$$

$\{x \mid f(x) \leq g(x)\} = \{x \mid f(x) \leq y \leq g(x)\}$

Start

$$x_0 \in \{x \mid f(x) \leq g(x)\} \quad \Leftrightarrow \quad f(x_0) \leq g(x_0)$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} \quad &\Leftrightarrow \quad f(x_0) \le g(x_0) \\
&\Leftrightarrow \quad f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0)
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} \quad &\Leftrightarrow \quad f(x_0) \le g(x_0) \\
&\Leftrightarrow \quad f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow \quad x_0 \in \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$x_0 \in \{x \mid f(x) \le y \le g(x)\}$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
x_0 \in \{x \mid f(x) \le y \le g(x)\} \Leftrightarrow f(x_0) \le y_0 \le g(x_0)
$$

$\{x \mid f(x) \le g(x)\} = \{x \mid f(x) \le y \le g(x)\}$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le y \le g(x)\} &\Leftrightarrow f(x_0) \le y_0 \le g(x_0) \\
&\Rightarrow f(x_0) \le g(x_0)
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le y \le g(x)\} &\Leftrightarrow f(x_0) \le y_0 \le g(x_0) \\
&\Rightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow x_0 \in \{x \mid f(x) \le g(x)\}
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le y \le g(x)\} &\Leftrightarrow f(x_0) \le y_0 \le g(x_0) \\
&\Rightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow x_0 \in \{x \mid f(x) \le g(x)\} \\
\{x \mid f(x) \le y \le g(x)\} &\subset \{x \mid f(x) \le g(x)\}
\end{aligned}
$$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le y \le g(x)\} &\Leftrightarrow f(x_0) \le y_0 \le g(x_0) \\
&\Rightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow x_0 \in \{x \mid f(x) \le g(x)\} \\
\{x \mid f(x) \le y \le g(x)\} &\subset \{x \mid f(x) \le g(x)\}
\end{aligned}
$$

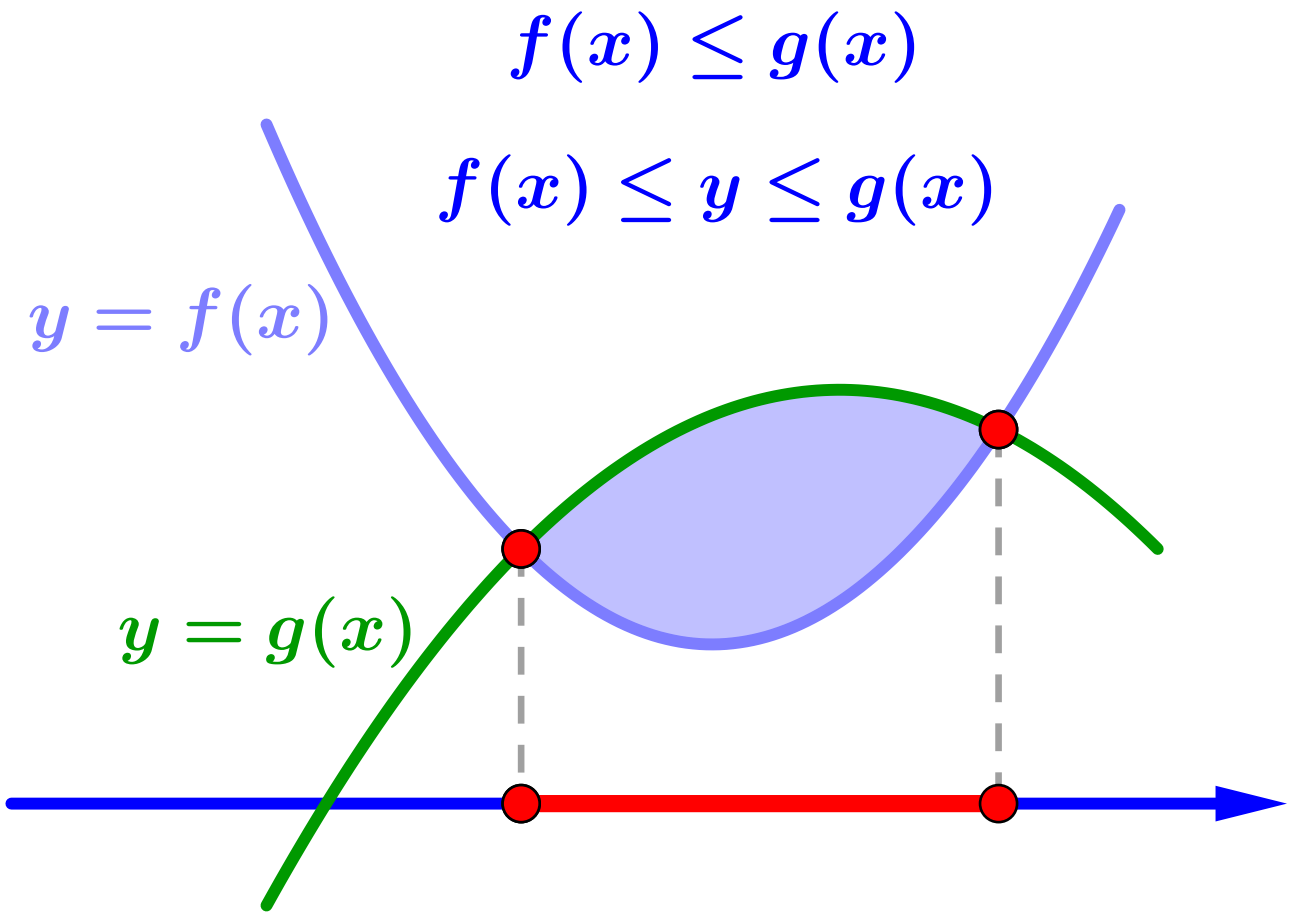
$\therefore$

Start

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le g(x)\} &\Leftrightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow f(x_0) \le \frac{f(x_0)+g(x_0)}{2} \le g(x_0) \\
&\Rightarrow x_0 \in \{x \mid f(x) \le y \le g(x)\} \\
\{x \mid f(x) \le g(x)\} &\subset \{x \mid f(x) \le y \le g(x)\}
\end{aligned}
$$

$$
\begin{aligned}
x_0 \in \{x \mid f(x) \le y \le g(x)\} &\Leftrightarrow f(x_0) \le y_0 \le g(x_0) \\
&\Rightarrow f(x_0) \le g(x_0) \\
&\Leftrightarrow x_0 \in \{x \mid f(x) \le g(x)\} \\
\{x \mid f(x) \le y \le g(x)\} &\subset \{x \mid f(x) \le g(x)\}
\end{aligned}
$$

$$\therefore \quad \{x \mid f(x) \le g(x)\} = \{x \mid f(x) \le y \le g(x)\}$$


$f(x) \le g(x)$
$f(x) \le y \le g(x)$
$y = f(x)$
$y = g(x)$