divisor $K' \in |K|$, $\phi^{-1}(K')$ has the finite cardinality, and $\dim(\{D_1\} \times \{D_2\}) = \dim|D_1| + \dim|D_2|$. Thus $\dim\{D_1+D_2\}$
$\geq \dim|D| + \dim|D'| = h^\circ(D)-1 + h^\circ(D')-1 = h^\circ(D) + h^\circ(K-D) - 2$
But $\dim\{K'\} = \dim|K| = h^\circ(K)-1$. $\Rightarrow$ $h^\circ(D)+h^\circ(K-D)-2 <$
$g-1$ $\Rightarrow$ $h^\circ(D)+h^\circ(K-D) < g+1$ $\Rightarrow$ Contradiction.

($\Leftarrow$). From the argument above, it is clear. ⅃

But by our lemma the points of a generic hyperplane section of $\iota_K(S)$ are in general position, and so $2h^\circ(D)$ can equal $d+2$ only if $D=0$, $D=K$, or ι_K is not one to one.

⌈ If $\iota_K : S \longrightarrow \iota_K(S) \subset \mathbb{P}^{g-1}$ is an embedding,

$\Rightarrow$ Let $D' = \iota_K(D)$, $\iota_K(K) = K'$. $\Rightarrow$ If $2h^\circ(D) = d+2$,
$2h^\circ(D') = d+2$. $\Rightarrow$ $\exists$ a generic hyperplane H in $\mathbb{P}^{g-1}$
s.t $H \cap$ "$\iota_K(S)$ = K'. (set of distinct points) $\Rightarrow$ By the argument above,
$\exists$ D_1, D_2 s.t $D_1 \in |D'|$ & $D_2 \in |K'-D'|$, $D_1 + D_2 = K'$.
$\Rightarrow$ Lemma p249, D_1 has the g points which must be ~~linearly independent~~, which is ~~not true~~, since D_1 lies in the hyperplane H.
Thus the possibilities are ① ι_K is not one to one (embedding ⇕) ~~to one~~, D is not special i.e.
$h^\circ(K-D) = 0$ $\Rightarrow$ $D = K$, ~~for, if $K \neq D$~~.

$\Rightarrow$ Since $\#(H \cap \iota_K(S)) = 2g-2$, if $D_1 \neq \phi \neq D_2$,
then $\# D_1 \geq g-1$ or $\# D_2 \geq g-1$ ($\because$ $\# D_1 + \# D_2 = 2g-2$)
$\Rightarrow$ By the lemma p249 $\dim \overline{D_1} = g-1$ or.