$\dim \overline{D_2} = g-1$. By the geometric Riemann-Roch theorem, $\dim \overline{D_1} = d-1-h^0(D)+1 = d-1-\frac{d+2}{2}+1 = \frac{d}{2}-1$, and $\dim \overline{D_2} = 2g-2-d-h^0(K-D)+1$

$$= 2g-2-d-(g+1-\tfrac{d+2}{2})+1 = 2g-2-d-g-1+\tfrac{d+2}{2}+1$$

$$= g-1-\tfrac{d}{2}-1 = g-\tfrac{d}{2}-2.$$

$\Rightarrow$ This is impossible since at least one of them is $(g-)$-plane in $\mathbb{P}^{g-1}$ unless $d=0$ or $\frac{d}{2}=g-1$. Thus $d=0$, then $D=\phi \Rightarrow D=0$

$d=2g-2 \Rightarrow D=K$.

Thus we can conclude that $2h^0(D)$ can equal $d+2$ only if $D=0$, $D=K$ or ι_K is not one to one. ⌟

Summing up, then, we have

Clifford's Theorem. For any two effective divisors on the compact Riemann surface S,

$$\dim|D| + \dim|D'| \le \dim|D+D'|$$

and for D special

$$\dim|D| \le \frac{d}{2}$$

with equality holding only if $D=0$, $D=K$, or S is hyperelliptic.

⌜ Just plug $h^0(D)-1$ in $\dim|D|$. $\Rightarrow$ O.K. ⌟

Corollary. If $C \subset \mathbb{P}^n$ is any nondegenerate curve of degree $d<2n$ and genus g,

$$g \le d-n$$