Problem 6. *Shaul*

It is sufficient to find a g satisfying $\int_e g\alpha = \int_e f\alpha$ for all $\alpha \in C^1(\Lambda)$, $e \in E$, given an f. Define

$$g|_\Gamma = f + 1, g|_{\Gamma^*} = f - 1$$

$$\int_e g\alpha = \frac{g(x) + g(y)}{2} \int_e \alpha = \frac{f(x) - 1 + f(y) - 1}{2} \int_e \alpha = \frac{f(x) + f(y)}{2} \int_e \alpha = \int_e f\alpha$$