Two different wings have the following spans and circulation distributions:

i) $b = 15$, $A_1 = 0.0400$, $A_3 = 0$, $A_5 = 0$

ii) $b = 16$, $A_1 = 0.0352$, $A_3 = -0.0055$, $A_5 = 0.0011$

All other A_n's are zero. Both wings are operating at the same $V_\infty = 1$ and $\rho = 1$.

a) Determine the lift distribution $L'(y)$ for each wing. Plot both L' versus y on the same graph.

b) Determine the induced-angle distribution $\alpha_i(y)$ for each wing. Plot both on the same graph.

c) Determine the lift L, induced drag D_i, and the span efficiency e for each wing. Which wing appears to be better from the engine's point of view?

d) Comment on the validity of the validity of the following statement:
"An elliptically-loaded wing is optimum for minimum induced drag"