

## Exercise 02

### *MEE556 Aeroelasticity*

Using Excel or a similar tool, plot a family of curves that depicts the relationship of the aileron elastic efficiency,  $\eta$ , versus normalised dynamic pressure,  $\bar{q} = q/q_D$ , for various values of  $R = q_R/q_D$  and  $0 \leq \bar{q} \leq 1$ . You should make two plots on the following scales to reduce confusion:

- Plot  $R < 1.0$  using axes  $-3 < \eta < 3$ .
- Plot  $R > 1.1$  using axes  $-3 < \eta < 3$ .

Answer the following questions:

1. Where does the aileron reversal occur ?
2. If you had to design a wing, what  $R$  would you try to match and why ?
3. What happens when  $q_R = q_D$ ?