1. Anderson problem 2.12 (section 13.2) (**60 Points**).

   For Single Edge Notched Bend (SE(B)) speciman use $S = 4W$. Note that for *Single Edge Notched Tension* (SENT) specimen $f(a/W)^*$ is,

$$f\left(\frac{a}{W}\right)^* = \frac{\sqrt{2\tan\frac{\pi a}{2W}}}{\cos\frac{\pi a}{2W}}\left[0.752 + 2.02\left(\frac{a}{W}\right) + 0.37\left(1 - \sin\frac{\pi a}{2W}\right)^3\right] \tag{1}$$

   and for *Double Edge Notch Tension* (DENT) we have,

$$f\left(\frac{a}{W}\right)^* = \frac{\sqrt{\frac{\pi a}{W}}}{2\sqrt{1-\frac{a}{W}}}\left[1.122 - 0.561\left(\frac{a}{W}\right) - 0.205\left(\frac{a}{W}\right)^2 + 0.471\left(\frac{a}{W}\right)^3 - 0.190\left(\frac{a}{W}\right)^4\right] \tag{2}$$

   Finally, the figures for *Center Cracked Tension* (CCT) and DENT are flipped (considering the correction in (2), the formulas are correct in the table and you just need to flip the figures).

   The handbook H Tada, P.C. Paris, G.R. Irwin, Stress Analysis of Cracks Handbook, 3rd ed., ASME Press. 2000 is a good reference for SIFs, and it is a more reliable source than the Anderson book.

2. Anderson problem 2.16 (section 13.2). Continuation:

   - Compute energy release rate for arbitrary angle β for plane stress condition.
   - Assume a constant fracture toughness G_c. Obtain a relation between a_{ini}, σ_1, σ_2, and G_c where a_{ini} is the initiation crack length.
   - For $\sigma_1 = 2\sigma_2$ obtain the angle β_c that corresponds to smallest crack length a_{ini}. Obtain corresponding a_{ini}.

   (**100 Points**)

3. Anderson problem 2.17 (section 13.2) (**50 Points**)

4. Anderson problem 2.20 (section 13.2) (**40 Points**)