Lecture A3 - Damping Ring Basics
Homework 2

Synchrotron radiation parameters

Given the parameters below, calculate the bending radius ρ, the energy loss per turn U_0 due to dipole magnets and due to wigglers, the synchrotron period T_{syn} and the longitudinal damping time τ_E (T_{syn} and τ_E both in milliseconds and in units of the revolution time T_0)

	ILC DR	**CLIC DR**	**LEP**
E (GeV)	5	2.9	100
B_{DIP} [T]	0.26	1	0.1
C [m]	3.20E+03	4.30E+02	2.70E+04
α_c	3.30E-04	1.30E-04	1.90E-04
f_{RF} [MHz]	650	1000	350
V_{RF} [MV]	14	5	3.60E+03