 # Copy and paste the code below this line for exercise 1:

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# Jonathan Scheffe - Extraterrestrial Solar Radiation Calculator 20200103


#from datetime import datetime,date,time,timedelta
import datetime
# import time
import math
#from geopy.geocoders import Nominatim
import matplotlib.pyplot as plt
import numpy as np

Gsc = 1367 #W m-2
def Gon(n):
   return Gsc*(1+0.033*np.cos(360*n/365*np.pi/180))

print(Gon(10))

days=np.arange(1,365,1)
#print(days)
print(Gon(days))

def B(n):
   return (n-1)*360/365*np.pi/180

def Gon_accurate(n):
   return Gsc*(1.000110+0.034221*np.cos(B(n))+.001280*np.sin(B(n))+.000719*np.cos(2*B(n))+.000077*np.sin(2*B(n)))

plt.plot(days, Gon(days),'r')
plt.plot(days, Gon_accurate(days),'b')
plt.xlabel('Day # in Year')
plt.ylabel('Gon, W m-2')
plt.show()#needed to display plot

#To get day in a year
today = datetime.datetime.now()
day_of_year = (datetime.datetime(today.year, 8, 6) - datetime.datetime(today.year, 1, 1)).days + 1 #Enter nonth (1 through 12) and day in month on LHS
print(day_of_year)
```