Workshop Exercises - Matching Array to Inverter / Energy Yield in a grid-connected PV System

1. A customer can only afford to purchase **approximately** (18) Trina 275 W_p solar modules.
The maximum effective cell temperature recorded at the site is 75^0C, while the minimum temperature is 15^0C.
Assume 1% voltage drop.
The maximum irradiance is 1000W/ m^2
From the SMA 5000TL datasheet provided please find:
- What will be the number of modules in the string?
- How many strings?

2. A customer wants to create a system using a SMA 3000TL inverter.
The maximum effective cell temperature recorded at the site is 75^0C, while the minimum temperature is 15^0C.

The maximum irradiance is 1000W/ m^2

From the data information provided (Trina 275W panel) please select for your chosen panel:
- How many modules will be in the array?
- How many strings will there be?
- How many modules in each string?

When you are finished, list the nominal power of the array, the array short circuit current and open circuit voltage.

3. The array consists of forty Trina 275 W solar modules.
There is no shading on the site so that the yearly average global irradiation is 1800 kWh/m^2 for the angle and direction that the array is facing. Assume:
- an inverter efficiency of 96%
- $f_{temp} = 0.88$
- average daily maximum ambient temperature of 30 degrees
- dirt derating of 5%
- total voltage drop of 3%

What will be the expected energy yield for this system?