

8. [12 points] Let $P(d)$ be a function giving the total electricity that a solar array has generated, in kWh, between the start of the year and the end of the d th day of the year. Each of the following sentences (a)–(d) expresses a mathematical equality in practical terms. For each, give a **single** mathematical equality involving P (and, as needed, its inverse and derivatives) that corresponds to the sentence.
- a. [3 points] The end of the day on which the array had generated 3500 kWh of electricity was the end of the 4th of January.
- b. [3 points] At the end of January 4th, the array was generating electricity at a rate of 1000 kWh per day.
- c. [3 points] When the array had generated 5000 kWh of electricity, it would take approximately half a day to generate an additional 1000 kWh of electricity.
- d. [3 points] At the end of January 30th, it would take approximately one day to generate an additional 2500 kWh of electricity.