

4. [12 points] Suppose  $P(\theta)$  is the power, in kilojoules per hour (kJ/h), produced by a solar panel when the angle between the sun and the panel is  $\theta$ , measured in degrees. Suppose  $C(t)$  is the power, in kJ/h, produced by the solar panel  $t$  hours after sunrise on a typical summer day. Give practical interpretations of the following.

a. [4 points]  $P'(30) = 9$ .

b. [4 points]  $\int_0^2 C(t) dt = 270$ .

c. [4 points]  $\frac{1}{12} \int_0^{12} C(k) dk = 288$ .