<u>Quiz 24.1B</u>

The Sun radiates power at a rate of 4.00×10^{26} Watts. That energy is spread uniformly over all space, and Earth receives some fraction of that energy.

a) Assuming an Earth-Sun distance of 93.0 million miles, calculate the **<u>intensity of light</u>** from the Sun at this distance. Answer with 3 SF, and show all work.
b) This initially unpolarized light passes through a vertically-oriented polarizer, then it passes through a second polarizer that makes an angle θ with the polarizer. If the final intensity of the light after passing through the two polarizers is 525 W/m^2, **<u>what is the angle θ</u>**?
c) This polarized light falls on a 12.5 square meter solar panel that collects energy for an orbiting space station. Assuming the panel is 100% efficient at converting solar energy into usable electric power, **<u>how much energy (in kilowatt-hours)</u>** is collected in one hour?