SAMPLE ASSIGNMENT

Radiative Balance

The power output of the sun is approximately 27 Watts m^{-3}, while an adult human has a power output of approximately 800 Watts m^{-3}. Yet, the temperature of the sun is approximately 5778 K (at the surface) while human temperature is about 37 ºC (310 K). How come? Explain why so that even a non-physicist like Dr. Lew can understand the mathematical analysis. Please ensure you show units!

Other facts that you may (or may not) find useful...

The volume of the sun is 1.412×10^{18} km^3. Its average density is 1.408×10^{3} kg/m^3. Its spherical diameter is 1.392684×10^{6} km.

The average density of an adult human is 1062 kg/m^3. Its average weight (globally, there are significant regional variations) is 62 kg. The average height of a Canadian human is 1.751 m (male) 1.623 m (female). Wikipedia provides an article on estimation and measurement of surface area of humans: (en.wikipedia.org/wiki/Body_surface_area).