AOSC 201 - CSS 3426

Extra directions for Lab 12: Climate

Correction p. 81
In the middle of the page:
$E = \sigma A T^4$
$\sigma = 5.67 \times 10^{-8}\ Wm^{-2}K^{-4}$

Question 2
In the first sentence of the paragraph, cross out the words “effective temperature” and replace it with “planetary equilibrium temperature.”

At the end of the paragraph, insert this sentence:
“The planetary temperature that accounts for albedo is called the effective temperature, and it is the temperature that a planet would have if there is an atmosphere surrounding it.”

This question requires you to find two expressions for temperature. First solve for T using your equation from Question 1. This is called the “planetary equilibrium temperature.”
Next, apply a correction to the equation you just found so that it gives you effective temperature based on the information you read in the paragraph. Albedo is denoted by the Greek letter α (alpha). This corrected version is now called the “effective temperature.”

Question 6
The “ln” that you see in the equation is the natural log function.
Correction: $C_0 = 280\ ppm$

Question 7
http://cdiac.esd.ornl.gov/
http://cdiac.esd.ornl.gov/pns/current_ghg.html

Question 8
For chlorofluorocarbons (CFCs), add up ***all*** of the compounds listed under the “Concentration in parts per trillion (ppt)” table. Yes, even the Halons.

Question 14
To calculate range, use $1.5\ Wm^{-2}K^{-1}$ as one value for λ, and $2.5\ Wm^{-2}K^{-1}$ as the other. Do not use values in between 1.5-2.5.