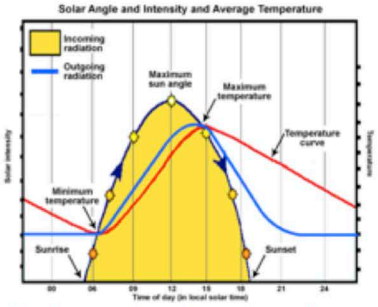
3) The schematic to the right was shown in the overview slides to explain the diurnal cycle of temperature in terms of radiative balance. Unfortunately, the diagram has an error (that I intentionally omitted from the narrative) where two of the curves are not consistent with the physics of radative heat transfer. Which two curves are in error? Use the laws of radiation to explain what the inconsistency is between the two curves.

(Hint: compare the diagram with Figure 3.02 of the text.)



Black curve-incoming solar radiation
Blue curve-outgoing IR radiation
Red curve-temperature

Use heat transfer concepts to answer the following two questions. Assume you are wearing the same clothing for every situation.

4) During a very cold, calm, winter night, why would you feel colder near sea level (e.g. 100 meters) than at a high elevation site like a ski resort (3000 meters) when the air temperatures are the same?

5) On a very cold, calm day, why do you feel warmer at noon on a clear sunny day than you would on an overcast day when the air temperature is the same?