



**Problem
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Assuming a spherical Earth of radius r ,

- 1) Determine the zonal areas of the following North latitudes:
 - 0 to 33 degrees
 - 33 to 51 degrees
 - 51 to 57 degrees
 - 57 to 63 degrees
 - 63 to 69 degrees
 - 69 to 75 degrees
 - 75 to 90 degrees.
- 2) Calculate the total zonal area between 0 and 90 North latitude degrees.
- 3) Determine the ratio of each zonal area to the total area.
- 4) How would you represent these areas geometrically?