



Problem
207

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On spherical planet ProfS with a radius of 3,000 miles, a perfectly straight roadway was constructed from benchmark A to benchmark B, 60 degrees apart as measured from the center of the planet.

- a) What is the length of this roadway?
- b) A surveyor proposes that an underground tunnel be constructed to connect location A to location B, and that a laser be used to align the entire length of the tunnel.

What is the length of the tunnel?

- c) What is the maximum depth of the tunnel beneath the planet's surface?