

Worksheet 8

Math 202

Monday, November 22, 2021

This worksheet is just to discuss in class, not to write up, since you're busy working on your final projects.

For Thanksgiving, Corey drives from Eugene to visit family in Warren, Oregon, north of Portland. He checks his odometer when he gets on the freeway, takes the straightest route he can, checks his odometer again when he arrives, and finds the distance to be 132 miles.

The day after Thanksgiving, it is unseasonably sunny. Corey finds a rake in the shed, which he measures to be 5 feet 8 inches long. He hangs a small weight on a string from the end of the rake and uses it to make sure the rake is straight up and down. When the sun is at its highest point in the sky, he measures the rake's shadow to be 13 feet 2 inches long.

He calls Nick, back in Eugene, who has a hoe that's 5 feet long and casts a shadow 10 feet 8 inches long.

From these measurements, estimate the radius of the earth. How does your answer compare to the true (average) radius of 3,959 miles?

Suppose that several of us travel for Thanksgiving and collaborate on this experiment. What can we do to get the best possible measurement?