

Worksheet 1

Math 202

Monday, September 27, 2021

Write down your group members' names, and their email addresses in case you want to continue the discussion outside of class. What year are they? What other courses are they taking this term?

Imagine you're on a road trip through North Dakota, looking out across endless plains to the horizon. How far can you see? It will be helpful to know that the radius of the Earth is about 4,000 miles or 6,400 km. You'll have to estimate the height of your eye above the ground. Be sure to draw a picture on the board to clarify what you're doing.

Explore the problem a bit. If you stop for gas, get out of the car, and stand up, now how far can you see? If you drive up on top of an overpass, 20 ft or 6 m above the ground, now how far can you see?

Returning to Eugene, you drive south on I-5 through the Willamette valley, eager to see Spencer Butte peeking over the horizon. It rises about 1,650 ft or 500 m above the floor of the valley. How far away can you first glimpse the top?

How far can you see from an airplane at an altitude of 35,000 ft, which is 6.6 mi or 10.7 km? What if you're in the International Space Station, at an altitude of 260 mi or 420 km? Does the method you've been using still give the answer you really want, or do you need to go back and think about the geometry again? What if you were halfway to the moon, at an "altitude" of 120,000 mi or 190,000 km?

Discuss any related questions that occur to you.