Assignment #2

Due on Friday, September 13, 2013

Read Section 1.3 on *Real World Measurements: Dealing with Units,* on pages 41–57 in the text.

Do the following problems

1. *(See Exercise 17 on page 58 in the text)* The distance from Los Angeles to San Francisco is about 382 miles.

   (a) Estimate the distance from Los Angeles to San Francisco in kilometers.

   (b) Suppose you drive from Los Angeles to San Francisco at an average speed of 80 kilometers per hour. Estimate the driving time of the trip.

2. *(See Exercise 20 on page 58 in the text)* Common speed limits in California are 25 mph, 30 mph, 45 mph, 50 mph , 55 mph, 65 mph and 70 mph. What are these limits in kilometers per hour?

3. *(See Exercise 31 on page 59 in the text)* A football field measures 40 yards by 100 yards. Assume that, at high noon on a very clear day, each square centimeter of field absorbs solar energy at a rate of 1.372×10^{-1} Joules per second. A typical power plant produces energy at a rate of about 100 million Joules per second

   (a) Estimate the area of the football filed in square centimeters.

   (b) How many Joules of solar energy are absorbed by one football field in one second at high noon.

   (c) How many football fields are needed to absorb solar energy at high noon at a rate that would match that of a typical power plant.

4. Exercise 32 on page 59 in the text.

5. Exercise 41 on page 61 in the text.