

Please turn the problems in by Sept. 8 if you want our feedback on whether the solutions are correct. We are not grading them- they are purely for practice.

1. A car is traveling at 120 kilometers per hour.
 - a) How many miles per hour is this? (Assume 1 mile = 1.6 kilometers)
 - b) How many feet per second is this? (1 mile = 5,280 feet)
 - c) How long will it take this car to travel the length a football field that is 100 yards long? (1 yard = 3 feet)
2. San Francisco and New York City are 2582 miles apart.
 - a) How many kilometers is this? (Assume 1 mile = 1.6 kilometers)
 - b) If a gigantic earthquake occurs in San Francisco at 9:00 AM, what time will people in New York City feel the seismic "shock waves"? Assume that the seismic waves travel at 5 km per second. Also, remember that, because they are in different time zones, 9:00 AM in San Francisco is 12:00 PM in New York City!
3. The Earth has a mass of 5.974×10^{24} kg. The Sun has a mass of 1.989×10^{30} kg. How many Earths would we have to have to equal the mass of the Sun?
4. The speed of light is 3×10^8 meters per second. How many kilometers does light travel in 8 seconds?
5. If a bathtub holds 40 gallons of water, and water is draining out of the tub at 2.3 gallons per minute, how many minutes will it be before the bathtub is empty?
6. Which vehicle has the smallest carbon footprint measured in mass of carbon dioxide emitted per mile:
 - a) One vehicle has an internal combustion engine that gets 30 miles per gallon of gasoline. Burning one gallon of gasoline produces about 19.4 pounds of carbon dioxide.
 - b) The other vehicle is an electric car that gets 2.5 miles per kilowatt hour. Assume that we get the electricity from a coal-fired power plant that produces 2.1 pounds of carbon dioxide per kilowatt hour.