

Dimensional Analysis Practice

Use dimensional analysis to solve these problems. Helpful conversion factors are in the box below. Show all work and box your final answer. Remember, no naked numbers!!

1 inch = 2.54 centimeters	1 milliliter = 1 cm ³	1 gram = 0.0022 pounds
1 mile = 5280 feet	1 pint = 0.125 gallons	1 ounce = 28.3 grams
1 kilometers = 0.621 miles	1 liter = 0.264 gallons	1 ton = 1000 kilograms

1. How many feet are there in 1250 mm?
2. Determine the number of feet in 8.5 km.
3. A car travels at 55 miles per hour. What is the speed in meters/second?
4. Mrs. Loughman raised 60 goats, and then entered into a series of business transactions. She traded all the goats for sheep at an exchange rate of 5 goats for 7 sheep. Next, she exchanged all the sheep for hogs at a rate of 4 sheep for 2 hogs weighing 250 lbs. each. She sold all the hogs at a market price of \$55.00 per 100.0 lbs. How much money did she make from the 60 goats?
5. How much would it cost Mr. Loughman in dollars to buy nails used to build a fence 125 m long if it required 30 nails per meter? Assume that 40 nails are sold per box at a cost of 75 ¢ per box.

6. How many miles could you drive for \$7.90 if the gas mileage of your car is 14 km per liter and the price is \$2.15 per gallon?

7. Mrs. Miller operates a crane that can pick up 3.0 tons of excavated earth an hour. Mrs. Miller's wages are \$125 per hour. What is the cost of picking up 85 kg of excavated earth?

8. One afternoon Mr. Corcoran decides to dig a hole through the earth to China for a game of table tennis, how many centuries would it be before he got there if he dug at a rate of 4 miles depth per day and the diameter of the earth is 1.27×10^7 m?

9. The density of an unknown liquid is 40 ounces per pint. What is its density in grams per cm^3 ?

10. On a recent trip Ms. Villanueva clocked her speed at 2 mi in 113 seconds. What was her speed in km/hour?