

## Dimensional Analysis Worksheet

3 feet = 1 yard

1.61 km = 1 mile

3.785 L = 1 gallon

4 quarts = 1 gallon

5280 ft = 1 mile

1. A farmer raised 60 goats, then entered into a series of business transactions. He traded all the goats for sheep at an exchange rate of 5 goats for 7 sheep. Next, he exchanged all the sheep for hogs at a rate of 4 sheep for 2 hogs weighing 250 lbs. each. He sold all the hogs at a market price of \$55.00 per 100.0 lbs. How much money did he make from the 60 goats?

2. The speed of light is  $3 \times 10^8$  m/s. Convert this speed to cm/ns.

3. You decide to dig a hole to China. How many years would elapse before you got there if you dug at a rate of 0.4 miles per day and the diameter of the earth is  $1.27 \times 10^7$  m? Hint: start by converting the diameter of the earth to miles.

4. You empty your dehumidifier tank once a day. If the capacity of the tank is 6 quarts, determine how many milligrams of water the dehumidifier collects from the air per second.

5. The gas mileage of your European car is listed as 14 km/liter.

a) How much is this in miles/gal?

b) How many miles could you drive for \$20 if the price of gas is \$2.89/gal?

6. A football field is 100 yards long. The top speed of a golf cart is 15 miles per hour. How many seconds would it take you to drive a golf cart across a football field?

Answers:

(1) \$5775, (2) 30 cm/ns, (3) 54 years, (4) 65.7 mg/s, (5) 33 miles/gal, 228 miles (6) 13.6 s