

Start your engines.....

1. A student has entered a 10.0 km race. How far is this distance in miles?

Useful information:  
1 m=1.094 yards  
1 mile=1760 yards

2. A car is advertised as having a gas mileage of 15 km/L. What is the gas mileage in miles/gallon?

Useful information:  
1 m=1.094 yards  
1 mile=1760 yards  
1L=1.0567 quarts

3. A drug is given to a man at 5 mg/kg. The man weighs 195 pounds. How many mg of the drug does the man need?

Useful information:  
1 kg =2.2 lbs

4. A patient needs 5 mg of a drug. The concentration of drug available to inject your patient is 10 mg/mL. How many mL do inject her with?

### Off to the races.....

1. A good friend of yours loves Mochas and drinks 2 a day for 2 weeks. The mocha contains 400 Calories and one pound of weight is 3500 Calories. How many pounds will she gain from drinking the Mochas?
2. A rhinovirus (the virus that causes colds) has a diameter of 25 nm. How many rhinoviruses would be needed to make a chain of 2 inches long? Express your number in scientific notation.
3. Typical blood loss during surgery can be 1.0 lbs of blood. A good friend of yours has donated a gallon of blood per year for five years. How many surgeries could be performed in five years from your friend's donation? The density of blood is  $1.125 \times 10^3 \text{ kg/m}^3$

Potentially useful conversion factors:

1 lb = 454 grams

1 inch = 2.54 cm

1 meter = 0.91 yards

1 in = 2.54 cm

1 quart = 0.946 liter

1 yard = 0.91 meters

1 lb = 454 g

1 L = 2.113 pints

1 gallon = 3.78 L

1 mile = 1760 yards