

# Math 107

## Math 107 – Homework #1 – Units part 1

**Unit Conversions.** Carry out the following unit conversions. Where necessary, round to the nearest hundredth.

1. Convert 24 feet to inches.
2. Convert 24 feet to yards.
3. Convert 25 minutes to seconds.
4. Convert 32 years to days (neglecting leap years).
5. Convert 2.5 hours to seconds.
6. Convert the Space Station's orbital speed of 17,200 miles per hour to units of miles per second.
7. Convert 3 years to hours (neglecting leap years).
8. Convert 26,500 inches to miles, using the facts  $1 \text{ mi}=1760 \text{ yd}$ ,  $1 \text{ yd}=3 \text{ ft}$ , and  $1 \text{ ft}=12 \text{ in}$

**Currency Conversions.** Use the currency exchange rates in Table below for the following questions.

9. Your dinner in London costs 60 British pounds. How much was it in U.S. dollars?
10. Your hotel rate in Tokyo is 31,000 yen per night. What is the nightly rate in U.S. dollars?
11. As you leave Paris, you convert 450 euros to dollars. How many dollars do you receive?
12. You return from Mexico with 3000 pesos. How much are they worth in U.S. dollars?
13. Gasoline sells for 1.5 euros/liter in Bonn (Germany). What is the price in U.S. dollars per gallon?
14. You purchase fresh strawberries in Mexico for 28 pesos per kilogram. What is the price in U.S. dollars per pound?

## Conversions with Square and Cubic Units.

15. A new sidewalk will be 4 feet wide, 200 feet long, and filled to a depth of 6 inches (0.5 foot) with concrete. How many cubic yards of concrete are needed?
16. Find the area in square feet of a rectangular yard that measures 20 yards by 12 yards.
17. An air conditioning system can circulate 320 cubic feet of air per minute. How many cubic yards of air can it circulate per minute?
18. A hot tub pump circulates 4 cubic feet of water per minute. How many cubic inches of water does it circulate each minute?
19. One cubic foot holds 7.48 gallons of water, and one gallon of water weighs 8.33 pounds. How much does a cubic foot of water weigh in pounds? in ounces (avoirdupois)?
20. Suppose you bought 10 six-packs of soda, each six-pack containing six 12-ounce cans. How many gallons of soda did you buy?

**TABLE Sample Currency Exchange Rates**

<b>Currency</b>	<b>Dollars per Foreign</b>	<b>Foreign per Dollar</b>
British pound	1.624	0.6158
Canadian dollar	1.005	0.9950
European euro	1.320	0.7576
Japanese yen	0.0120	83.33
Mexican peso	0.07855	12.73