**Name:** _____
**MATH 101**
**Fall 2023**
**HW 7: Due 10/02**

*"If we hit that bullseye, the rest of the dominoes should fall like a house of cards. Checkmate."*
*–Zapp Brannigan, Futurama*

**Problem 1.** (10pt) Express the following decimal numbers in scientific notation:

(a) $5$

(b) $10.3$

(c) $0.000000123$

(d) $159000000$

(e) $0.4$

**Problem 2.** (10pt) Express the following numbers in scientific notation as decimal numbers:

(a) $5.23 \cdot 10^5$

(b) $1.3 \cdot 10^0$

(c) $9.7 \cdot 10^{-8}$

(d) $4.0 \cdot 10^3$

(e) $5.782 \cdot 10^{10}$

**Problem 3.** (10pt) Showing all your work and expressing the result in scientific notation with three significant figures, convert the following:

(a) 0.008 megagrams to centigrams

(b) 120 oz to stones [1 oz = 28.35 g, 1 stone = 6.35 kg]

(c) 3 gallons to milliliters [1 gal = 3.785 L]

(d) $2.16 \cdot 10^9$ $ft^3$ to $mi^3$ [5,280 ft = 1 mi.]

(e) 3.72 meters per square second to feet per square minute [0.3048 m = 1 ft]

**Problem 4.** (10pt) Suppose you are talking with your friend who has moved to Italy. The conversation has drifted to Miami housing. Currently, the cost of space in Miami is approximately $464 per square foot.

(a) For your friend, convert this to Euros per square meter. [€1= $1.07; 1 ft = 0.3048 m]

(b) Using (a), find the conversion factor from dollars per square foot to Euros per square meter.

(c) Use your answer from (b) to convert $1,845 per square foot to Euros per square meter.