Extra Practice - Exam 1 - F15 - Ver 3

Name: _____ Class: _____ Date: _____

Instructions: Answer the following questions. Show ALL work for problems to receive full credit. Make sure to include proper units and significant figures for all answers.

[10 pt] 1. How many Significant Figures are in each of the following numbers:

(a) 34.00 — 1(a) **4**

(b) 0.000530 — 1(b) **3**

(c) 4600 — 1(c) **2**

(d) 5.0×10^{-7} — 1(d) **2**

(e) 150,000. — 1(e) **6**

(f) 0.000405 — 1(f) **3**

(g) 4050 — 1(g) **3**

(h) 213.10 — 1(h) **5**

(i) 0.00045 — 1(i) **2**

(j) 1.2345×10^{3} — 1(j) **5**

[10 pt] 2. Write each of the following numbers in Scientific Notation, showing the proper number of significant figures.

(a) 450. — 2(a) 4.50×10^{2}

(b) 134,000 — 2(b) 1.34×10^{5}

(c) 56.85 (rounded to 3 SF) — 2(c) 5.69×10^{1}

(d) 0.000 000 000 158 264 (rounded to 3 SF) — 2(d) 1.58×10^{-10}

(e) 0.00499 (rounded to 2 SF) — 2(e) 5.0×10^{-3}

(f) 1500 (rounded to 3 SF) — 2(f) 1.50×10^{3}

(g) 4,283,000 (rounded to 2 SF) — 2(g) 4.3×10^{6}

(h) 82,730,000 (rounded to 3 SF) — 2(h) 8.27×10^{7}

(i) 0.000 273 729 (rounded to 2 SF) — 2(i) 2.7×10^{-4}

(j) 29.5 (rounded to 2 SF) — 2(j) 3.0×10^{1}

[10 pt] 3. Solve the following mathematical problems. Show all work. Express your answers to the proper number of Significant Figures, rounding where needed.

(a) $(65)(721,345)$ 3(a) 4.7×10^7

(b) $34.25 + 15.8 + 45$ 3(b) **95**

(c) $\frac{(0.0018)(15.45)}{256}$ 3(c) 1.1×10^{-4}

(d) $(2.4 \times 10^{-5})(5.75 \times 10^{-7})$ 3(d) 1.4×10^{-11}

(e) $12,000 + 450 + 5,500$ 3(e) **18,000**

[15 pt] 4. Perform the following conversions. Show all work. Express your answers to the proper number of significant figures and with the proper units.

(a) 256 nL to gal 4(a) 6.76×10^{-8} gal

(b) 0.055 fm to m 4(b) 5.5×10^{-17} **m**

(c) 8.45×10^{18}mL to ML 4(c) 8.45×10^{9} **ML**

(d) 1.80 m^2 to ft^2 4(d) **19.4 ft^2**

(e) 2.200×10^{-6} kg to μg 4(e) **2,200. μg**

[20 pt] 5. Perform the following conversions. Show all work. Express your answers to the proper number of significant figures and with the proper units.

(a) You are building the great wall of Colorado (sort of like the Great Wall of China)! Assume the wall is 1320. miles long. The cost of each meter of wall is 45 yen. If the exchange rate is 1 dollar = 119.26 yen, how much will the wall cost? Round your answer to the nearest penny. 5(a) **$ 801,396.95**

(b) Given the following conversions convert 2.5 bicks to punds. (2.8 lix = 3.7 horka, 1 merps = 3 bicks, 4.5 punds = 1.2 lix, and 8 horka = 2 merps). 5(b) **9.5 punds**

(c) Bob is filling his new 10,000. gallon pool with a hose at a rate of 25.0 L/sec. How long in minutes will it take to fill the pool? 5(c) **25.233 min**

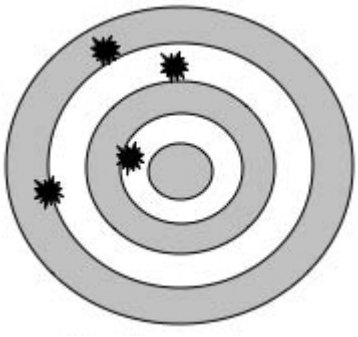
(d) The space shuttle flies at 2,500 km per hour as it orbits the earth. If the space shuttle were to try flying to Mars (2.26×10^8miles away), how long in days would it take? 5(d) **6060 days**

(e) A velociraptor can run 12.5 mi/hr. How many feet/sec is this? 5(e) **18.3 ft/sec**

[4 pt] 6. In the picture below, is the shooter: (a) Accurate, (b) Precise, (c) Accurate, but not Precise, (d) Precise but not Accurate, (e) Accurate and Precise, (f) Neither Accurate nor Precise. Explain

E - shot are in the bullseye therefore accurate. Shots are close together therefore precise.

[4 pt] 7. In the picture below, is the shooter: (a) Accurate, (b) Precise, (c) Accurate, but not Precise, (d) Precise but not Accurate, (e) Accurate and Precise, (f) Neither Accurate nor Precise. Explain



F - Not close to the bullseye therefore not accurate. Not really close to each other therefore not very precise.

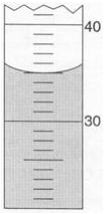
[4 pt] 8. If the average temperature in MN during winter is -1.2×10^1 °C.
What is the temperature in °F.

8. **10. F**

[4 pt] 9. If the average temperature in Rangely during summer is 98.0 °F.
What is the temperature in °C.

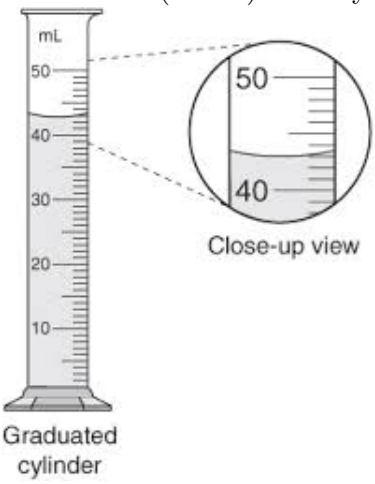
9. **36.7 C**

[4 pt] 10. What is the uncertainty of the graduated cylinder pictured below?
What value (in mL) would you write in your lab book?



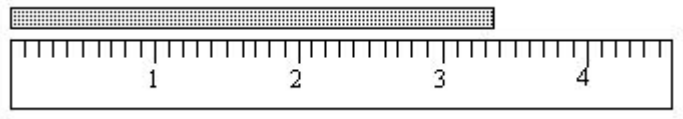
Uncertainty: ±0.5
Value = 35.0 mL

[4 pt] 11. What is the uncertainty of the graduated cylinder pictured below?
What value (in mL) would you write in your lab book?



Uncertainty: ±0.5
Value = 43.0 mL

[4 pt] 12. What is the uncertainty of the ruler pictured below?
What value (in cm) would you write in your lab book?



Uncertainty: ±0.05
Value = 3.35 cm

[4 pt] 13. Jane received a gold (Au) necklace from her boyfriend for her birthday. While working in chemistry lab she decided to determine if it was real or not. Using a balance she measured the mass of her necklace as 554.2 grams and when placing in a graduated cylinder noted that the volume of the water increased from 34.5 mL to 63.2 mL. What is the density of her necklace? Should she keep her boyfriend.

Density = 19.3 g/mL therefore it is real Au! Seems like her boyfriend is a keeper.

[4 pt] 14. What is the mass (in lbs) of a gold brick that measure 6.0 in x 3.0 in x 3.0 in?

38 lbs