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Su2019/ CHEM1301/ Homework 2

Due: 7/10/2019

1. Use exponential math rules to calculate the following quantities.

$10^4 \times 10^6$	$(10^2)^6$
$10^6 \times 10^{-2} \times 10^{12}$	$(1.52 \times 10^{-3})^3$
$\frac{10^{20} \times 10^{12}}{10^{-8}}$	$(2.75 \times 10^3) (1.31 \times 10^2) (7.85 \times 10^8)$
$3.0 \times 6.24 \times 10^8$	$[(1.75 \times 10^2)^4]/(1.85 \times 10^3)$
$1.85 \times 10^{15}/(1.78 \times 10^{-2})$	$4.2/(1.84 \times 10^3)$

2. Count the number of significant figures there are in each number below. Assume numbers are measured unless indicated.

	Number of Sig Figs		Number of Sig Figs
a) 1.203		h) 24 (counted)	
b) 1003.5200		i) 10100	
c) 1003.02		j) 1.01×10^4	
d) 0.00265		k) 1.010×10^4	
e) 0.00080600		l) 1.0100×10^4	
f) 7.203×10^{10}		m) 0.00429	
g) 7.203×10^{-10}		n) 100.0270	

3. ROUND the following numbers to **4** sig figs:

a) 1.064800		f) 5,601.048	
b) 1.00210		g) 0.0000548000	
c) 10.802		h) 0.0304860	
d) 8,746,821.5		i) 52.01560	
e) 6,000,000		j) 1.0794600	

4. ROUND the following numbers to **3** sig figs:

f) 1.064800		k) 5,601.048	
g) 1.00210		l) 0.0000548000	
h) 10.802		m) 0.0304860	
i) 8,746,821.5		n) 52.01560	
j) 6,000,000		o) 1.0794600	

5. Calculate the following expressions. Report your answer to the correct number of sig figs.

	Answer:
a) $12.084 - 1.02$	
b) $8.6204 + 12.0648 + 8546.1$	
c) $(8.65 + 14.9876) - 2.95$	
d) $8.015 * .00059$	
e) $9.00180 / 805.9$	
f) $9.026 \times 10^3 / 4.000 \times 10^{-6}$	
g) $(105.23 + 4.0070) * 4.03$	
h) $(105.23 + 400.7) * 4.03$	
i) $(4.0680 * 19.8) + 2.170$	

6. Use dimensional analysis to complete the following unit conversions.

a) Convert 84.100 yards (yds) to inches

b) Convert 84.100 inches to yards

c) Convert 3.706 days to seconds

d) 12.004 gallons to fl oz

e) 14.600 pounds to oz

f) 87.304 Liters (L) to cups

g) 1.203×10^8 miles to cm

h) 4.500 minutes to weeks