

Name: CALVIN
Date:
Hour:

Ch.3 Practice

ALL NUMBER ANSWERS MUST BE BOXED IN. INCLUDE ALL UNITS AS NEEDED! GO VIKINGS!!!

Give the correct number of sig digs for the following:

- 1) a. 4000 1
b. 0.000514 3
c. 0.000000030008 5
d. 60001 5
e. 7.10000 6
f. 9.42×10^3 3
g. 0.027402 5
h. 50,000. 5
i. 0.000823000 6
j. 80 1

Place the following into scientific notation: (keep same # of sig digs)

- 2) a. 567,000 5.67×10^5
b. 0.0000223 2.23×10^{-5}
c. 0.0300 3.00×10^{-2}
d. 500 5×10^2
e. 2001 2.001×10^3
f. 0.0000520 5.20×10^{-5}

Take the following out of scientific notation: (keep same # of sig digs)

- 2) a. 5.43×10^3 5,430
b. 8.76×10^{-5} 0.0000876
c. 9.0×10^6 9,000,000
d. 7.12×10^{-3} 0.00712

3) Perform the operation and round to correct # of sig digs.

a. $(2.1 \text{ ft}) + (15 \text{ ft}) + (0.634 \text{ ft})$

17.734 18 ft

b. $(152.00\text{g})/(50.0\text{mL})$

3.04 g/mL

c. $(2.00 \times 10^6 \text{ m}) (12 \text{ m})$

$2.4 \times 10^7 \text{ m}^2$

d. $(14.2 \times 10^{-4}) / (3.16 \times 10^{-2})$

4.49×10^{-2}

4) ROUND to three sig digs.

a. 3.05555-g

3.06 g

b. 0.004097-mL

0.00410 mL

c. 8.499-miles

8.50 miles

d. 16.5143-mm

16.5 mm

e. 223.924 kg

224 kg

5) ROUND to one sig dig.

a. 150-cm

200 cm

b. 0.0345-g

0.03 g

c. 249-inches

200 in

d. 84-cubits

80 cubits

6) WRITE four rules for determining sig digs. To the left of each letter SHOW an example of the rule. Cross out the zeros if they do not count, underline the zeros if they DO count.

a. Sandwich 2004

b. Leading $\cancel{0.00}12$

c. Trailing $3.4\underline{00}$

d. Whole #'s 30 but $30.$

**** REMINDER ~ once you complete the entire packet ~ go back through and check your work. You MUST complete EVERYTHING and turn this in by MONDAY!**

7) SHOW your work and find the volume of 125.00g of Iron. (Hint, use your text to find the density of Iron). Follow the steps to show your work!!!

- 1) LIST THE GIVEN
- 2) SOLVE THE EQUATION FOR THE UNKNOWN (arrow method!)
- 3) PLUG AND CHUG
- 4) EVALUATE ANSWER, box in the answer and make sure you have UNITS and SIG DIGS!

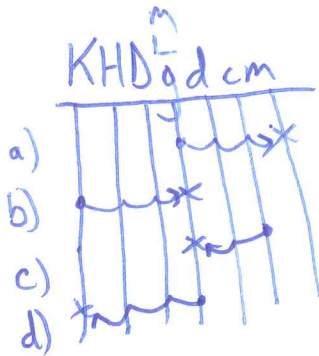
$M = 125.00 \text{ g}$
 $D = 7.87 \text{ g/mL}$
 $V = ?$

$$D = \frac{M}{V}$$

15.9 mL

$$V = \frac{M}{D} = \frac{(125.00 \text{ g})}{(7.87 \text{ g/mL})} = 15.8831003812$$

8) Make the following conversions. USE KHDodcm method and SHOW YOUR WORK of dragging the decimals. BOX in your answer with UNITS!!:



a) $322 \text{ L} \rightarrow \text{mL}$

322,000 mL

b) $0.0064 \text{ kg} \rightarrow \text{g}$

6.4g

c) $35 \text{ cm} \rightarrow \text{m}$

0.35m

d) $3,000 \text{ m} \rightarrow \text{km}$

3km

9) USE FACTOR label method to make the following conversions. Follow the UNITS! Show how they cross off. BOX in your answer! Keep the same number of SIG DIGS:

a. $3 \text{ miles} \rightarrow \text{inches}$

$$\frac{3 \text{ miles} \cancel{5,280 \text{ ft}}}{1 \text{ miles} \cancel{5,280 \text{ ft}}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 190,080 \text{ in.}$$

b. $14 \text{ gallons} \rightarrow \text{L}$

$$\frac{14 \text{ gal} \cancel{3.79 \text{ L}}}{1 \text{ gal} \cancel{3.79 \text{ L}}} = 53 \text{ L}$$

c. $5,290 \text{ feet} \rightarrow \text{km}$

$$\frac{5,290 \cancel{\text{ft}}}{5,280 \cancel{\text{ft}}} \times \frac{1 \text{ miles}}{1 \text{ miles}} \times \frac{1.61 \text{ km}}{1 \text{ miles}} = 1.6 \text{ km}$$

10) Write the FIRST five numbers of your phone number: 29244
 Now round your phone number to the following number of SIG DIGS:

a. Four

29244 29240

b. Three

29244 29200

c. Two

29244 29000

d. One

29244 30000

11) USING one CONCISE (it means short and to the point or brief) sentence for each, explain the following:

- a. The number of SIG DIGS your answer can have if you are adding or subtracting.

Fewest to right of decimal

→ Try it: $0.004 + 32 + 6.1 = \underline{38.704}$ 38

- b. The number of SIG DIGS your answer can have if you are multiplying or dividing.

Fewest sig digs

→ Try it: $(303) \cdot (12) \cdot (4.00) = \underline{14544}$ 15000 or 1.5 × 10⁴

* Now place that number into scientific notation: _____

12) When converting from Celsius to Kelvin you must add 273.

Kelvin temperature scale is based on Absolute Zero. The Kelvin scale cannot have negative numbers. Water would boil at 100 degrees Celsius and 373 Kelvin.

13) Write two numbers that are not identical but would be considered precise with: 11.4, 11.3, 11.5

14) If the density of gold is 19.6 g/mL. Write two numbers that are not identical but would be considered accurate:

19.6, 19.7, 19.5

→ Suppose you ask your calculator to divide 12.00 g by 6.00 mL. The calculator will say "2." This answer has only 1 SIG DIG but you are allowed to have 3 SIG DIGS ~ so your calculator can help you but YOU have to realize the answer should be "2.00 g/mL"

→ Now suppose you use your calculator to divide 12.00 g by 5.72 mL. The calculator will say "2.097902098." This answer has TEN SIG DIGS, but you are only allowed to have 3 SIG DIGS ~ so YOU have know that the answer should be "2.10 g/mL"

** AFTER COMPLETING THIS PACKET ~ I rate my understanding of Ch.3 as a reasonable /10. One lingering (staying around) question I STILL have is:

Go VIKINGS!!

→ Reasonable