

Significant Figures Practice

Directions: Determine the number of significant figures in each of these numbers.

1) 70.00 mL _____

4) 89,000 s _____

2) 103.89 kg _____

5) 120. K _____

3) 0.0620 hm _____

Directions: Using scientific notation, express the number 684,570,000,000 to the following significant figures

6) One sig fig _____

7) Two sig figs _____

8) Three sig figs _____

9) Four sig figs _____

10) Eight sig figs _____

Directions: Complete the following calculations. Round off the answers to the correct number of significant figures.

11) $51.2 \text{ kg} + 64.44 \text{ kg}$ _____

12) $6.435 \text{ cm} - 2.18 \text{ cm}$ _____

13) $16 \text{ m} \times 2.82 \text{ m} \times 0.05 \text{ m}$ _____

14) $3.46 \text{ m} / 1.82 \text{ s}$ _____

15) $2.98 \text{ mL} + 8.1 \text{ mL} + 5.0214 \text{ mL}$ _____

16) $10.001 \text{ g} / 0.0050 \text{ L}$ _____

17)
$$\frac{22.0 + 8.4 + 19.61}{32.9}$$

Name _____ Date _____ Period _____

Percent Error and Density Practice

Directions: Solve each of the following problems. Show all of your work and include any units of measurement when necessary.

- 1) Each of five students used the same ruler to measure the length of the same pencil. These data resulted: 15.33 cm, 15.34 cm, 15.33 cm, and 15.34 cm. The actual length of the pencil was 15.85 cm. Are these measurements accurate? Are they precise? Explain.
- 2) As the result of experimental work, a student finds the density of a liquid to be 0.1369 g/cm^3 . The known density of that liquid is 0.1478 g/cm^3 . What is the percent error of this student's work?
- 3) An irregularly shaped stone was lowered into a graduated cylinder holding a volume of water equal to 2.0 mL. The water level in the graduated cylinder rose to 7.0 mL once the stone was dropped into the cylinder. If the mass of the stone was 25 g. What is the density of the stone?

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Name _____ Date _____ Period _____

Dimensional Analysis Practice**Directions:** Solve each of the following problems. Show all your work including units of measurement.

1) $147 \text{ cg} = \underline{\hspace{2cm}} \text{ g}$

11) $3.75 \times 10^3 \text{ mm} = \underline{\hspace{2cm}} \text{ pm}$

2) $62.7 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

12) $17.6 \text{ }\mu\text{m} = \underline{\hspace{2cm}} \text{ cm}$

3) $265 \text{ nm} = \underline{\hspace{2cm}} \text{ m}$

13) $9.6 \text{ km/hr} = \underline{\hspace{2cm}} \text{ m/s}$

4) $0.0185 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

14) $20.0 \text{ mL} = \underline{\hspace{2cm}} \text{ cm}^3$

5) $8.26 \times 10^7 \text{ cg} = \underline{\hspace{2cm}} \text{ ng}$

15) $26.3 \text{ g/mL} = \underline{\hspace{2cm}} \text{ }\mu\text{g/L}$

6) $67.3 \text{ }\mu\text{g} = \underline{\hspace{2cm}} \text{ mg}$

16) $9.4 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

7) $59 \text{ pg} = \underline{\hspace{2cm}} \text{ g}$

17) $3.9 \text{ m/hr} = \underline{\hspace{2cm}} \text{ mm/cs}$

8) $0.72 \text{ kg} = \underline{\hspace{2cm}} \text{ ng}$

18) $4.2 \times 10^5 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

9) $17.82 \text{ nm} = \underline{\hspace{2cm}} \text{ cm}$

19) $258 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

10) $94.1 \text{ mg} = \underline{\hspace{2cm}} \text{ ng}$

20) $602 \text{ m} = \underline{\hspace{2cm}} \text{ dm}$

Word problems (SHOW ALL WORK):

21) How many seconds is equivalent to 52 years? (assume 365 days in a year)

22) It is 810 km to New York City from Cary. How many inches is this equal to? (3.28 ft = 1 meter)

23) A single owl may maintain territories of up to 3 acres. How many owls could live in a large wooded area of 20 hectares? (1 hectare = 1 sq. dekameter = $100 \text{ m}^2 = 2.47 \text{ acres}$)

Atoms and Isotopes Worksheet

1. Describe the general arrangement of subatomic particles in the atom.

2. What contribution did these scientists make to the atomic theory of the atom?
 - a. Dalton
 - b. Thomson
 - c. Rutherford

3. What is the isotope notation of the element that has an atomic number of 24 and a mass number of 52?

4. What part of the atom contains practically all its mass?

5. How do the isotopes of an element differ? How are they the same?

6. Which element contains the largest number of neutrons per atom?
 - a. Bismuth-210
 - b. Polonium-210
 - c. Astatine-210
 - d. Astatine-211

7. Fill in the following table

Isotope Name	Nuclear Symbol	Atomic Number	Mass Number	# of Protons	# of Electrons	# of Neutrons
calcium-40						
		12	24			
				1		2
	$^{197}_{79}\text{Au}$					
					26	30
			201	80		
		17				18

8. Calculate the average atomic mass of chlorine if its isotopes and percent abundances are as follows.

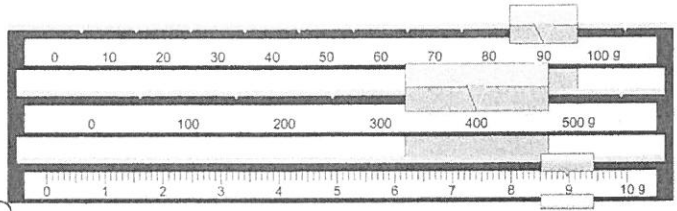
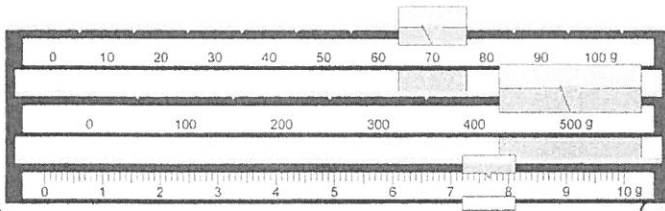
Show all work!

Mass of isotope	% abundance
36.96590 amu	24.47
34.96885 amu	75.53

Reading Instruments With Significant Figures Worksheet

Name: _____ Period: _____

Please read each instrument to their limits. Include units and correct number of SigFigs.



① _____

② _____



③ _____



④ _____



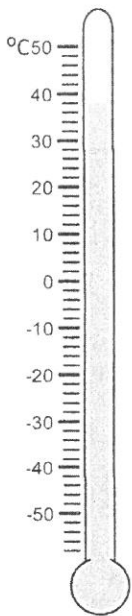
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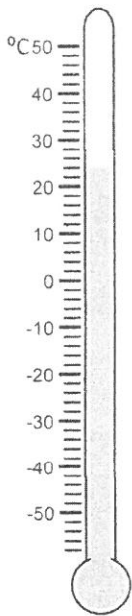
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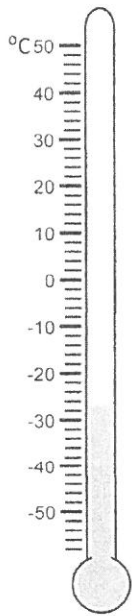
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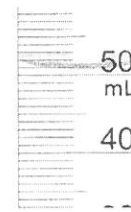
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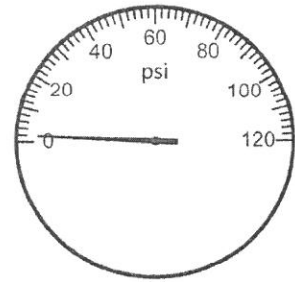
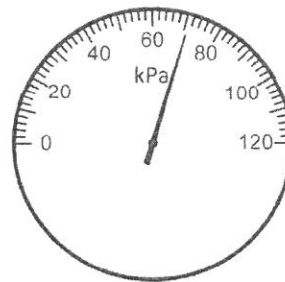
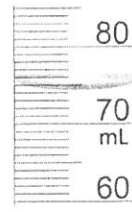
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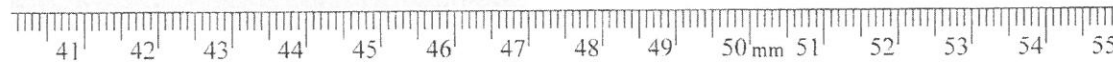
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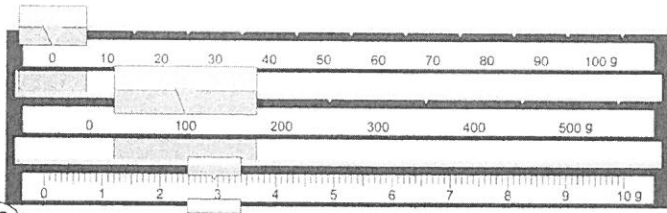
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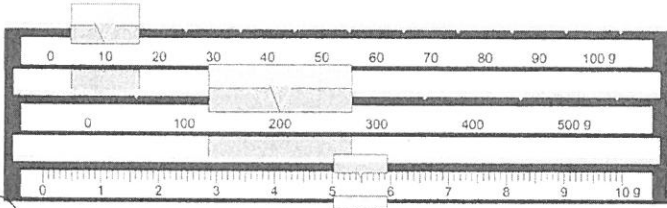
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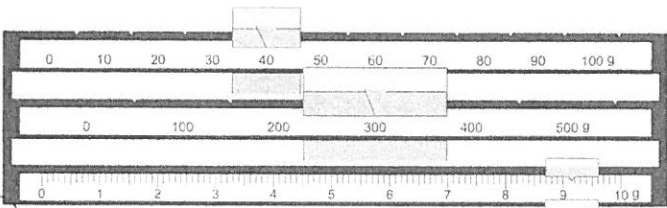
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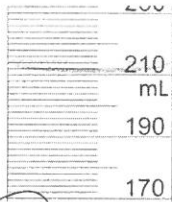
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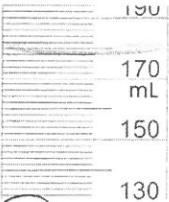
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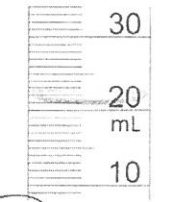
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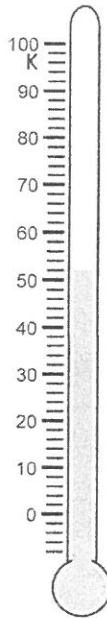
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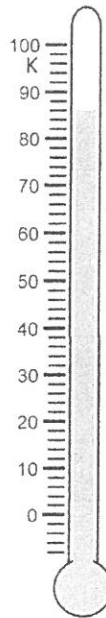
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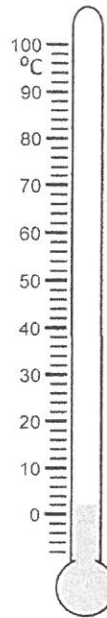
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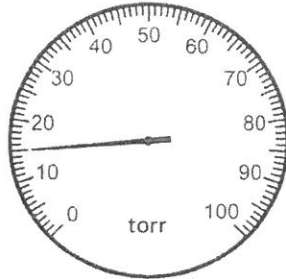
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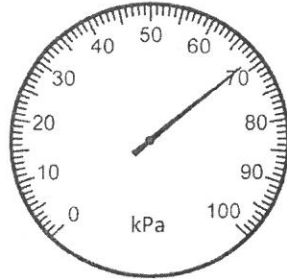
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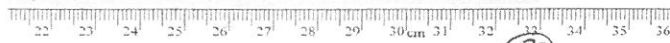
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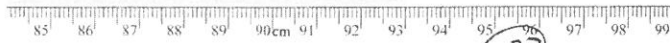
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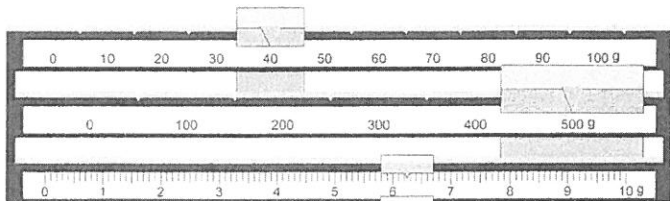
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