Test
Measurement & Nanotechnology
Grades 6 - 12

Answer the following True or False:  **Circle One**

1. A liter contains 1,000 smaller units called milliliters.
   True    or    False

2. A liter has a Volume of 1,000 cubic centimeters.
   True    or    False

3. If we convert 6,543,219 meters, to kilometers we get 6,543,219 km.
   True    or    False

4. Nanoscience is the study and development of materials and structures in the range of 1 nm (10^{-9} m) to 100 nanometers (100 x 10^{-9} m = 10^2 x 10^{-9} = 10^{-7}) and the unique properties that arise at that scale.
   True    or    False

   Definition: Angstrom (Å) = 10^{-10} meters

5. An angstrom Å is greater than an nanometer.
   True    or    False

End of True/False

Answer the following Multiple Choice Questions:  **Circle One** answer for each question.

6. A vitamin C tablet has a mass of 500 mg. That is the same as_____.
   (a) 5 g    (b) 0.05 g    (c) 0.5 g    (d) 0.5 kg

7. The length of a pencil would probably best be measured in______.
   (a) milligrams    (b) meters    (c) micrometers    (d) centimeters

8. The unit of volume that is the same as one cubic decimeter is the______.
   (a) meter    (b) liter    (c) gram    (d) millimeter

9. Determine the order of magnitude difference in the sizes of the radii for Atoms (10^{-10} meter) compared with neutrons (10^{-15} meter).
   (a) Order 4    (b) Order 2    (c) order 12    (d) Order 5

10. How long has it been legal to use the metric system in the U.S.?
    (a) 1958.
    (b) 1975
    (c) 1866
    (d) 1921.

Answers: 1. T  2. T  3. T  4. T  5. F  6. (c) 7. (d) 8. (b) 9. (d) 10 (c)
More Metric Questions including:  
Surface Area, Volume & Mass
Consider the box (rectangular Prism) 7 cm by 8 cm by 9 cm and then answer the questions;

![Box diagram]

Answer the Follow True or False: Circle the correct Answer and write the answer in the space provide.

1. The 7 cm by 8 cm by 9 cm box has a capacity less than one half liter (500 cm³ or 500 mL).
   (a) TRUE    (b) FALSE  1. Answer _____________

2. The 7 cm by 8 cm by 9 cm box has a Volume greater than 500 cm³.
   (a) TRUE    (b) FALSE  2. Answer _____________

End of True/False

Answers: 1. (b) Volume = 504 cm³ or 504 mL 2. (a)
3. (b) \(382 \; \text{cm}^2 \) 4. (d) 5. (c)

Answer these Multiple Choice Questions:

3. What is the surface area of the 7 cm by 8 cm by 9 cm box?
   3. Answer _____________
   (a) 191 cm²  (b) 382 cm²  (c) 94 cm²  (d) 32 cm²

4. If the box is filled brim full of water what is the mass of the water?
   4. Ans = _______________ g
   (a) 94 g  (b) 382 g  (c) 500 g  (d) 504 g

5. Consider a Liter Cube (10 cm by 10 cm by 10 cm) and compare with the box above 7 cm by 8 cm by 9 cm. What is the difference in their capacity (volumes) in mL.
   5. Ans = ________________ mL
      (a) 1 000 mL  (c) 94 mL  (c) 496 mL  (d) 940 mL

6. Hello my name is ____________________________
   and I am _____________ cm tall which is ___________ m.

7. Hello my School is ____________________________
   And we like the Metric System because: ______________***
   ______________***
   ______________***

The End