

Penang Sangam High School

Year 12

Chemistry

Worksheet 1

Questions

1. In an experiment, it must always be ensured that measurements recorded are of
 - A. low accuracy and low precision.
 - B. high accuracy and low precision.
 - C. low accuracy and high precision.
 - D. high accuracy and high precision.
2. Having knowledge of dimensional analysis helps an experimenter to
 - A. reduce error in measurement.
 - B. increase accuracy of the measured value.
 - C. increase precision of the measured value.
 - D. determine the correct units of a calculation problem.
3. The correct **prefix** for the exponential base unit 10^{-6} is
 - A. kilo.
 - B. milli.
 - C. mega.
 - D. micro.
4. Identify the following examples as either **random error** or **systematic error**.
 - (i) A plastic tape measure becomes slightly stretched over the years, resulting in measurements that are too high.
 - (ii) The mass of a marble measured 3 times gave values of; 15.76 g, 15.72 g and 15.74 g.
 - (iii) The position of an experimenter's eye level is slightly below the meniscus, resulting in lower measurements.
 - (iv) A weighing scale reads 5kg when nothing is placed on it.
5. A sample of sea water contains 11.2 g of sodium chloride per litre of solution. How many milligrams of sodium chloride would be contained in 25.0 mL of this solution?
6. A chemistry student requires 500 milligrams of a chemical for a particular experiment. She has 30 grams of the chemical. How many times can the student carry out the experiment?

7. Do the following conversions:

a) A pressure of 12 atm into kPa.

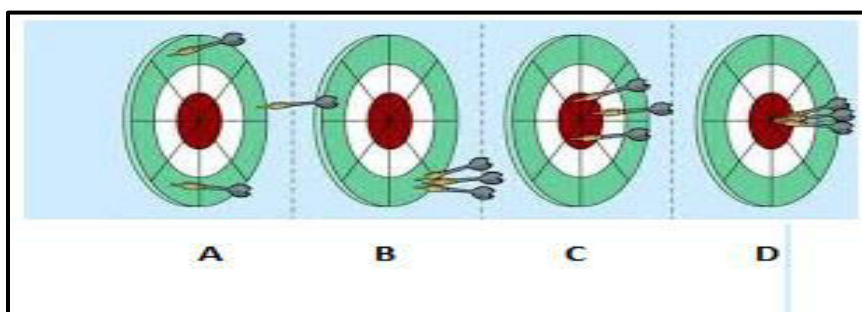
c) 500mg to kg

b) 3cm^3 to μm^3

d) 1dm^3 to L

8. Differentiate between **precision** and **accuracy**.

9. The diagram given below shows the analogy of four different shooters attempting to hit on a dart board.



Identify the measurement that shows:

- i. High accuracy and high precision
- ii. Low accuracy and low precision
- iii. Low accuracy and high precision
- iv. High accuracy and low precision

10. Study the diagram given below which shows a piece of magnesium ribbon being measured by two rulers (A and B) and answer the question that follows.

Length of the ribbon on Ruler A: 1.5cm

Length of the ribbon on Ruler B: 1.56cm

- (i) Give the correct length measurements with their uncertainties of the magnesium ribbon for rulers A and B.
- (ii) Which ruler is more reliable? Give reasons.