Worksheet: Units and Measurements

ISC · Class 11 · Physics · 10 questions · 23 marks

Name: _____ Date: _____ Score: _____ / 23

Q1. How many significant figures are in 0.005060? *[1 mark]*

Q2. Why was the kilogram redefined in 2018, and what is it now based on? *[2 marks]*

Q3. Two masses, 1.02 g and 9.89 g, are each measured to +/- 0.01 g on the same balance. Which has the larger relative error, and by how much? *[2 marks]*

Q4. Find the dimensions of the universal gravitational constant G from F = G m1 m2 / r^2. *[2 marks]*

Q5. A cube's side is measured as 7.203 m. Give its total surface area and volume to the correct number of significant figures. *[3 marks]*

Q6. Check whether v^2 = u^2 + 2as is dimensionally correct. *[2 marks]*

Q7. Add 436.32 g, 227.2 g and 0.301 g, giving the answer to the correct precision. Why is the rule different from multiplication? *[2 marks]*

Q8. A rectangular sheet measures 16.2 cm by 10.1 cm on a metre scale. Give its area with the correct uncertainty. *[3 marks]*

Q9. The period of a pendulum T depends on length l, mass m of the bob, and g. Derive the relation using dimensional analysis, and state what the method cannot give you. *[3 marks]*

Q10. Both K = (1/2)mv^2 and K = (3/16)mv^2 have the dimensions of energy. Explain why dimensional analysis cannot decide between them, and name two other things it cannot do. *[3 marks]*