

Worksheet: Units and Measurements

IB · 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 $F = G \frac{m_1 m_2}{r^2}$. *[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]*
