

PHYSICS

1. Ten identical glittering cubes were put on the market for sale for UGX 50,000 for each gram claiming that were truly made of gold. They measured the mass of one of the cubes and it was found to be 0.1568kg and the side of the cube 2cm in length.

Hint: the density of pure gold is 19.6gcm^{-3}

Task: As a learner of physics;

- a) Determine if the cubes are made of gold
b) Determine the amount of money that would be got if all the 10 cubes were sold
2. On a school day during the COVID 19 Pandemic, the temperature of all athletes was required to them had a red liquid later identified as mercury but had no calibrations on it. It was immersed in pure melting ice, steam above boiling water and in the armpits of the athletes and the corresponding lengths of the mercury thread noted in the table below. An athlete wearing flay sole

Placement of thermometer	Length of the mercury thread(cm)
Pure melting ice	10.0
Steam above the boiling water	65.0
In the armpit of an athlete	32.0

Shoes and a white attire appeared to slide whenever he tried to accelerate.

The athlete also complained of feeling cold as compared to the other athletes who were wearing black.

Hint; Athletes were only allowed to run if their temperature did not exceed **311K**

Use your knowledge of physics to;

- a) Determine if the athlete whose temperature was measured was allowed to participate in the race.
- b) Explain why the thermometer had mercury in it.

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