Answer on Question # 74496, Physics / Other

Question Uniform metre rule of mass 130g balances at the 40cm mark when a mass X is placed at the 10cm mark. What is the value of X (take g=10)

Solution Let us count the length from the 40 cm mark. Then the balance equation is

$$X \cdot 30 + \frac{130}{100} \cdot 40 \cdot 20 = \frac{130}{100} \cdot 60 \cdot 30$$

From this we can find X:

$$X = \frac{\frac{130}{100}(60 \cdot 30 - 40 \cdot 20)}{30} \approx 43.3\,g$$