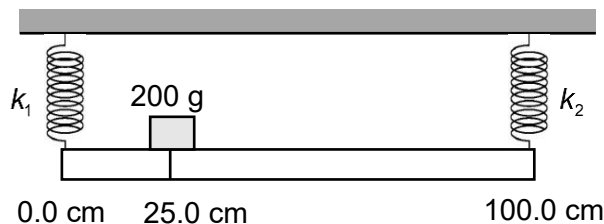


- 4 A metre rule of mass 50 g is suspended horizontally from the ceiling by two springs at its ends, as shown.



The spring at the 0.0 cm mark has spring constant  $k_1$ , while the spring at the 100 cm mark has spring constant  $k_2$ .

The springs have the same length when they are unstretched.

A 200 g mass is placed at the 25.0 cm mark.

What is the ratio  $\frac{k_2}{k_1}$  such that the ruler is horizontal?

- A** 0.33                      **B** 0.43                      **C** 2.3                      **D** 3.0

- 5 A cube of density  $\rho$  of side  $l$  floats in a beaker of water of density  $\rho_w$ . The depth of the cube