

**Mathematics Questions by Topics**

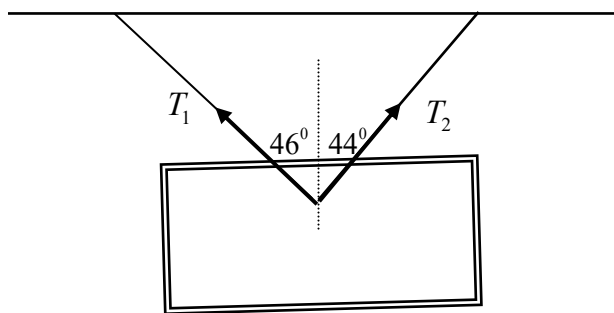
Motion and Force

Question 43

Source: K8SM2Q14

**Question 43**

A painting of mass one kilogram is to be hung on a wall using two light strings. Unfortunately the painting is not quite horizontal. One string makes an angle of  $46^\circ$  with the vertical and has a tension of magnitude  $T_1$  newtons. The other string makes an angle of  $44^\circ$  with the vertical and has a tension of magnitude  $T_2$  newtons, as shown in the diagram below.



Which of the following is true?

- A.  $\frac{T_1}{T_2} = \tan(44^\circ)$
- B.  $\frac{T_1}{T_2} = \tan(46^\circ)$
- C.  $T_1 + T_2 = g$
- D.  $T_1^2 + T_2^2 = g^2$
- E.  $T_1 = T_2$