

**Mathematics Questions by Topics**

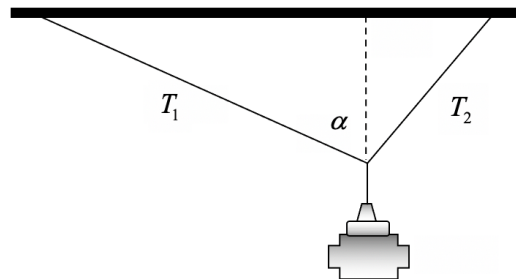
Motion and Force

Question 28

Source: K12SM2Q17

**Question 28**

An engine weighing 5 kg is suspended by two ropes at right angles to one another, which support tensions of  $T_1$  and  $T_2$  newtons. The rope supporting a tension of  $T_1$  makes an angle of  $\alpha$  to the vertical as shown in the diagram below.



Then,

- A.  $T_1 = 5 \sin(\alpha)$  and  $T_2 = 5 \cos(\alpha)$
- B.  $T_1 = 5 \cos(\alpha)$  and  $T_2 = 5 \sin(\alpha)$
- C.  $T_1 = 5 \tan(\alpha)$  and  $T_2 = \frac{5}{\tan(\alpha)}$
- D.  $T_1 = 49 \sin(\alpha)$  and  $T_2 = 49 \cos(\alpha)$
- E.  $T_1 = 49 \cos(\alpha)$  and  $T_2 = 49 \sin(\alpha)$