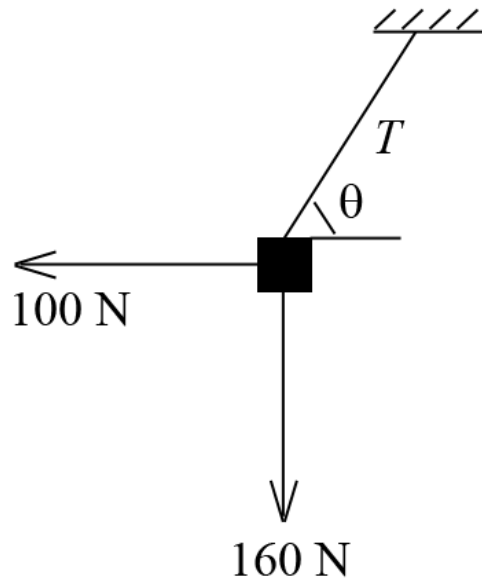Question #72203, Physics / Other

A 160-N child sits on a light swing and is pulled back and held with a horizontal force of 100N. The magnitude of the tension force of each of the two supporting ropes is

Solution

T represents total tension in both supporting ropes.

$$\sum F_x = 0; \sum F_y = 0$$

$$-100 + T\cos\theta = 0;$$

$$-160 + T\sin\theta = 0$$

$$T = \sqrt{100^2 + 160^2} = 189\,\text{N}$$

The tension in each of the ropes is equal to 0.5T = 94.5 N

Answer: 94.5 N

Answer provided by AssignmentExpert.com