

[mex204] On frozen pond

A father ($m_1 = 70\text{kg}$) and his son ($m_2 = 35\text{kg}$) are standing on the ice in the middle of a pond. The coefficient of static friction between boots and ice is the same for both persons. Who will win the race (from rest) to the edge of the pond. . .

- (a) if both runners move as fast as possible without slipping,
- (b) if each runner drags a sled ($m_s = 10\text{kg}$) by a cord, where the frictional force acting on the sled is negligibly small?

Justify your answers carefully.

Solution: