Physics 151 Class Exercise: Torque 2

1.   A school yard teeter-totter with a total length of 5.2 m and a mass of 36 kg is pivoted at its center. A 18-kg child sits on one end of the teeter-totter.

(a) Where should a parent push vertically downard with a force of 210 N in order to hold the teeter-totter level?
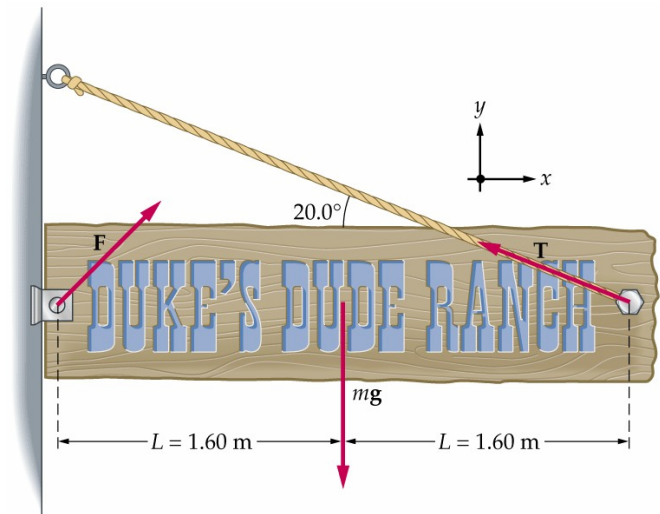
Answer:	

(b) Where should the parent push with a force of 310 N?

Answer:	

(c) How would your answers to parts (a) and (b) change if the mass of the teeter-totter were doubled? Explain.

2. When you arrive at Duke's Dude Ranch, you are greeted by the large wooden sign shown in the figure below. The left end of the sign is held in place by a bolt, the right end is tied to a rope that makes an angle of 20.0° with the horizontal. If the sign is uniform, 3.20 m long, and has a mass of 16.0 kg, what is (a) the tension in the rope, and (b) the horizontal and vertical components of the force, F, exerted by the bolt?

Answer:	
Answer:	
Answer:	