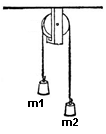
Laws of Motion: Teacher Notes

1. Two objects with masses of m1=3kg and m2=5kg are connected by a light string that passes over a frictionless pulley, as in the figure. Determine:
   1. The tension in the string
   2. The acceleration of each object
   3. The distance each objet will move in the first second of motion if both objects start from rest.
2. A traffic light weighing 1.00X102N hangs from a vertical cable tied to two other cables that are fastened to a support. The upper cables make angles of 37⁰ and 53⁰ with the horizontal. Find the tension in each of the three cables.

**53⁰**

**37⁰**

**T3**

**T2**

**T1**

[](http://www.google.com/imgres?q=traffic+light&um=1&hl=en&safe=active&biw=1280&bih=843&tbm=isch&tbnid=tGJCecNXrSyZYM:&imgrefurl=http://www.psdgraphics.com/icons/traffic-lights-icon-psd/&docid=J6Y1dW7mmWTkUM&imgurl=http://www.psdgraphics.com/file/traffic-lights-sign.jpg&w=1280&h=1024&ei=tRS4TvHBJ6qtsQLtppmDBA&zoom=1)

1. A car of mass ***m*** is on an icy driveway inclined at an angle Ѳ=20⁰. Determine:
   1. The acceleration of the car, assuming that the incline is frictionless.
   2. If the length of the driveway is 25m and the car starts from rest at the top, how long does it take to travel to the bottom?
   3. What is the car’s speed at the bottom?



Ѳ

