Static Equlibrium -Hanging Signs
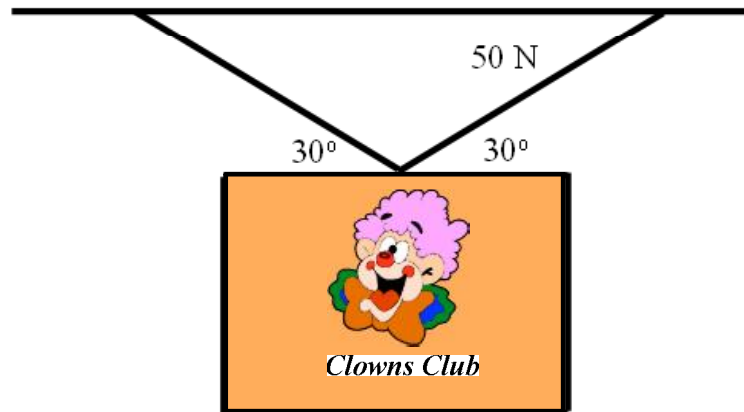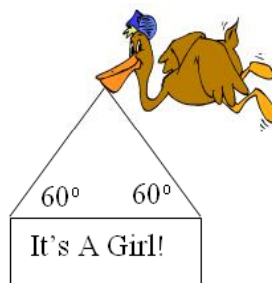
1. Find the magnitude of the weight of the clown's picture. (50 N)

50 N
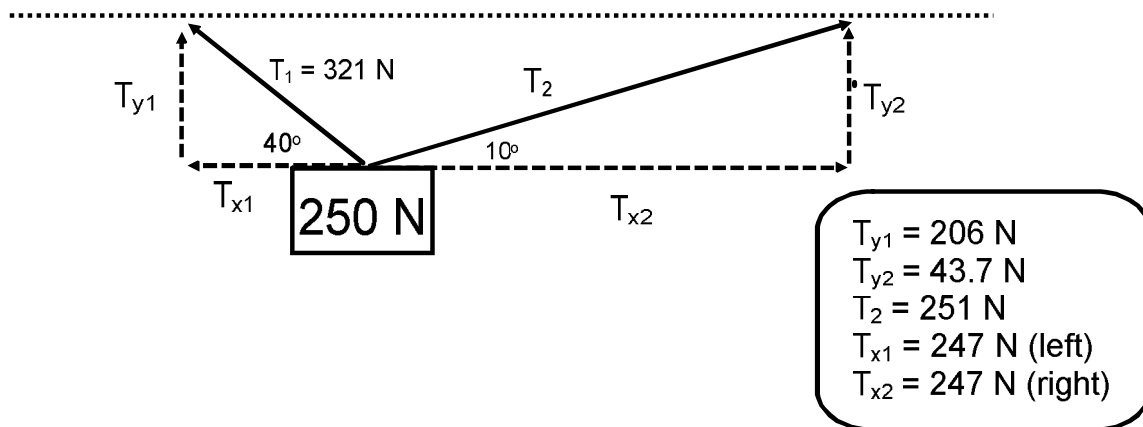
30°   30°

Clowns Club

2. If the sign has a mass of 5.00 kg, what is the tension in the cables? (38 N)

100°

Eat At Ed's
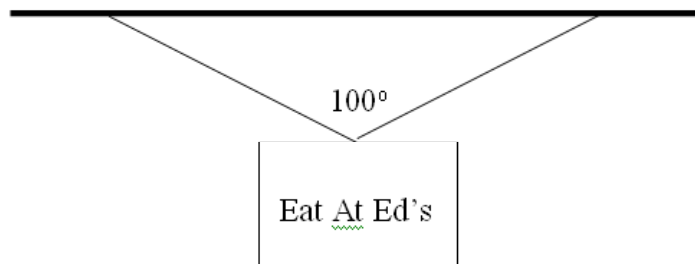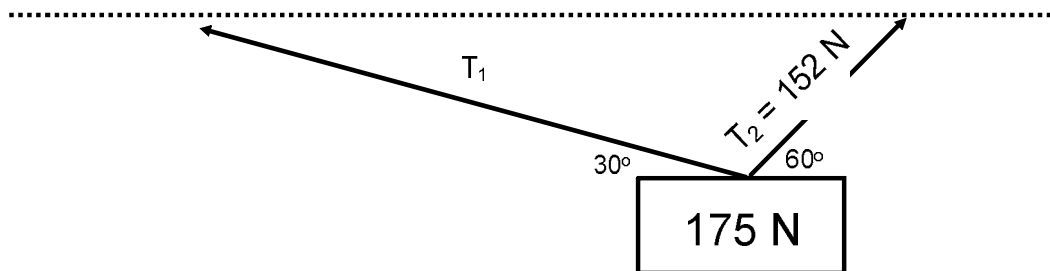
3. The infamous stork announces good news. If the sign has a mass of 10 kg, then what is the force of tension in each cable? (57 N)

60°   60°

It's A Girl!

Determine T_{y1}, T_{y2}, T_2, T_{x1}, and T_{x2} in the following sketch.

$T_1 = 321$ N
T_{y1}
T_2
T_{y2}
40°
10°
T_{x1}
250 N
T_{x2}

$T_{y1} = 206$ N
$T_{y2} = 43.7$ N
$T_2 = 251$ N
$T_{x1} = 247$ N (left)
$T_{x2} = 247$ N (right)

Determine T_1 in the following sketch.

T_1
$T_2 = 152$ N
30°
60°
175 N

A traffic light is to be hung like in the diagram to the right (both angles are the same). The cable being used will break if their tension reaches 2100 N. What is the smallest angle that can be made if the lights have a mass of 110 kg? (Answer: 15°)

θ   θ
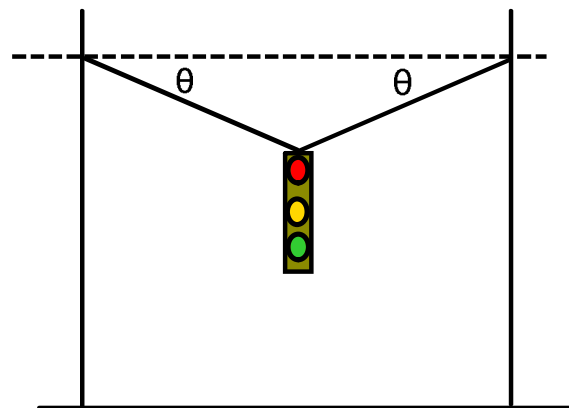
A traffic light is to be hung like in the diagram to the right. The cable being used will break if its tension reaches 1750 N. What is the largest mass that can be hung? (Answer: 151 kg)

130°