

Objects in Equilibrium

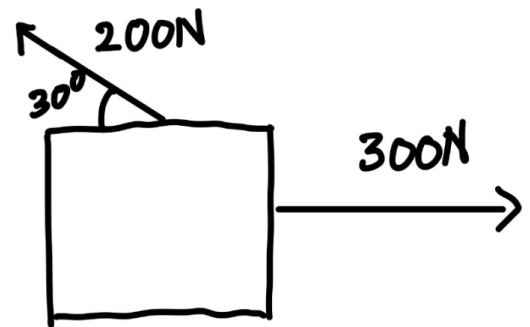
An object is in equilibrium if the net force on the object is 0.

1. For each scenario, write Y/N if the object is in equilibrium.

- a) A car accelerating forward
- b) A box moving at a constant velocity of 12m/s
- c) A box hanging off a rope on the ceiling
- d) A ball at its highest point when thrown upwards

2. Student 1 pulls a box north with 100N. Student 2 pulls the box west with 50N. What force (magnitude and direction) does student 3 need to pull to keep the box in equilibrium?

3. Student 1 pulls a box with force 200N 30° N of W. Student 2 pulls with force 300N East. What force does student 3 need to pull to keep the box in equilibrium?



4. A 20kg box hangs off the ceiling connected by a rope angled 30° to the horizontal. Another rope pulls the box to the right. Find the tension forces of the two ropes.

