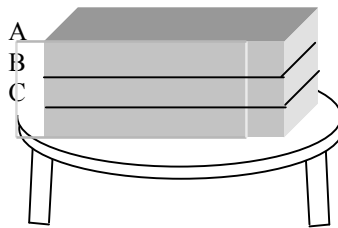


Forces I

1. Lindsay is going to perform a triple flip from the diving board.
 - a. Draw a free body diagram as she stands on the diving board.
 - b. Draw a free body diagram as she is jumping from the diving board.
 - c. Draw a free body diagram as she is in the air.
2. Andrew hits a softball with a bat. Draw one free body diagram each for the bat and the ball.
3. A 6 kg ball that is traveling 8 m/s is slowed to a stop in 8 meters. What is the net force on the ball?
4. Three books are stacked on a stool as shown.



- a. Draw a free body diagram for each of the books and the stool. Label the forces by what causes each and what it acts on. Do not use any numbers.
 - b. The mass of book A is 2.0 kg, the mass of book B is 3.0 kg, the mass of book C is 4.0 kg, and the mass of the stool is 4.0 kg. Find:
 - i. The force of book A on book B.
 - ii. The force of book B on book C.
 - iii. The force of book C on the stool.
 - iv. The force of the stool on the ground.
5. A 100 kg box is pushed in different directions. Joe is pushing with a force of 250 N west. Charles is pushing 300 N from the north. What is the acceleration in magnitude and direction form?
 6. Olivia is trying to get her dog to move. She is pulling on the leash, but isn't having any success. The leash is at an angle of 30 degrees below the horizontal at her hand. If the dog has a mass of 12 kg and the frictional force between the dog and the ground is 15 N, how hard is Olivia pulling on the leash?