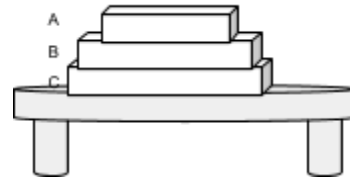


Forces 1

1. My is going to perform an inward $2\frac{1}{2}$ dive 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. Colin hits a tennis ball with a racquet. Draw one free body diagram each for the racquet and the ball.

3. 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.



4. Maya 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. The dog has a mass of 12 kg and the frictional force between the dog and the ground is 15 N. Calculate the tension in the leash.

5. A 100 kg box is pushed in different directions along a relatively frictionless floor. Josh is pushing with a force of 250 N to the west. Thomas is pushing 300 N from the north. Determine the acceleration of the box in magnitude and direction form.