Test 2   Spring 2005
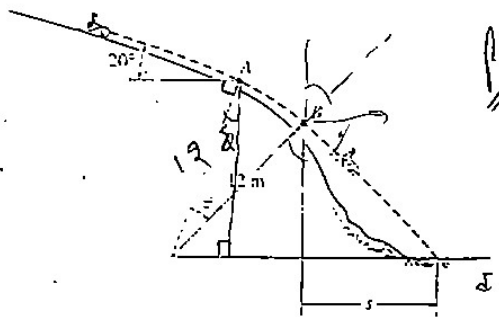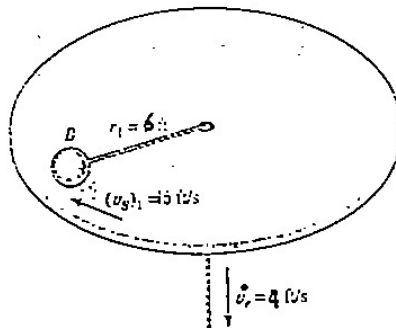Instructor: Dr. N. Zakhia   Time: 45 mns

1. The toboggan and the passenger shown in the figure have a total mass of 60 kg. when it reaches point A it has a speed of $v_A = 4$ m/s. Neglect the friction, determine:
    a. The speed at B, v_B.
    b. The angle θ at which it leaves the smooth circular curve.
    c. The distance, s, where it plunges in the snow.

2. A ball of 8 lbf is traveling around in a circle of radius $r_1 = 6$ ft with a speed of $v_{\theta 1} = 16$ ft/s. if the attached cord is pulled down through the hole with a constant speed of $v_r = 4$ ft/s, neglect friction and the size of the ball.
    a. Determine the time required for the ball to reach a speed of 24 ft/s.
    b. How far, r_2, is the ball from the hole when this occurs.

End of test 2.