

24. A bag of cement weighing 325 N hangs in equilibrium from three wires as suggested in Figure P5.24. Two of the wires make angles $\theta_1 = 60.0^\circ$ and $\theta_2 = 40.0^\circ$ with the horizontal. Assuming the system is in equilibrium, find the tensions T_1 , T_2 , and T_3 in the wires.

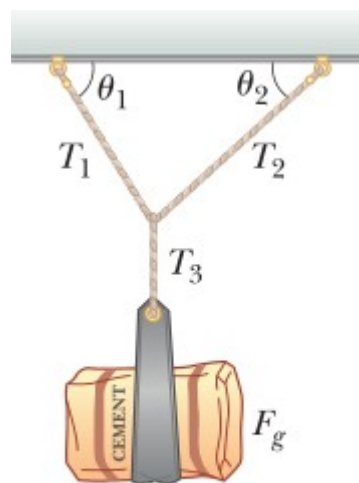


Figure P5.24

28. An object of mass $m_1 = 5.00$ kg placed on a frictionless, horizontal table is connected to a string that passes over a pulley and then is fastened to a hanging object of mass $m_2 = 9.00$ kg as shown in Figure P5.28. (a) Draw free-body diagrams of both objects. Find (b) the magnitude of the acceleration of the objects and (c) the tension in the string.

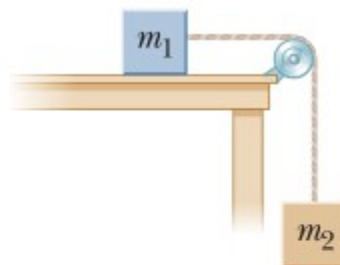


Figure P5.28

Problems 28 and 45.

- 30.** Two objects are connected by a light string that passes over a frictionless pulley as shown in Figure P5.30. Assume the incline is frictionless and take $m_1 = 2.00$ kg, $m_2 = 6.00$ kg, and $\theta = 55.0^\circ$. (a) Draw free-body diagrams of both objects. Find (b) the magnitude of the acceleration of the objects, (c) the tension in the string, and (d) the speed of each object 2.00 s after it is released from rest.

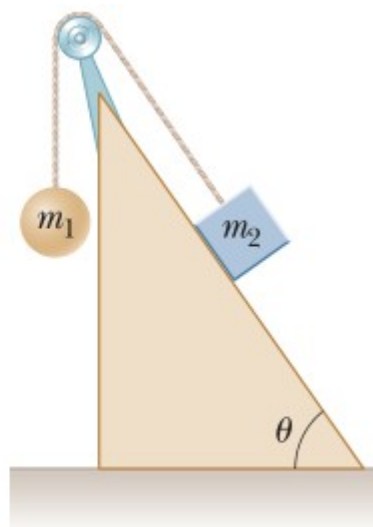


Figure P5.30