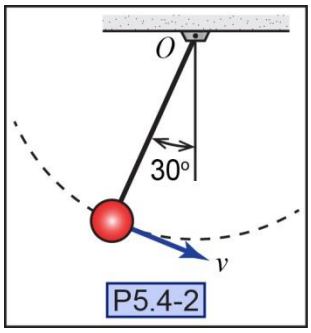
P5.4-2) The 10-lb bob of a pendulum has a velocity of 15 ft/s. If the cable supporting the bob is 5 feet long, determine the tension in the cable and the total acceleration of the bob at the instant shown.



Given:

Find:

Solution:

FBD

Draw a free-body diagram of the bob. Remember to include a coordinate system.

Equation of Motion

Determine the tension in the cable.

T = _____

Determine the acceleration of the bob in the direction of the velocity.

a_t = _____

Kinematics

Calculate the total acceleration of the bob.

a = _____