

PROBLEM 10.10

Two identical spheres, each of mass m , are suspended from a horizontal ceiling by two strings of length l . The strings are attached to the ceiling at a distance $2l$ apart. The spheres are released from rest at an angle θ_0 to the vertical. Determine the speed of each sphere at the instant the strings are vertical.

Hint: Use the principle of conservation of energy.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.11

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.12

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.13

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.14

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.15

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.16

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

PROBLEM 10.17

A particle of mass m is suspended from a horizontal ceiling by a string of length l . The particle is released from rest at an angle θ_0 to the vertical. Determine the speed of the particle at the instant the string is vertical.

Ans. $v = \sqrt{2gl(1 - \cos \theta_0)}$

