The energy conservation law:

$T + U = const$

$T = \frac{mv^2}{2}$ - kinetic energy

m - mass of the body

v - speed

$U = mgh$ - potential energy

g - gravitational acceleration

h - high

$T_1 + U_1 = T_2 + U_2$

1 - initial state

2 - final state

a.

$T_1 = 0 \quad U_1 = -mgl * cos\,(34)$

$U_2 = -mhl$

$T_2 = T_1 + U_1 - U_2 = mgl\,(1 - cos(34)\,)$

$\frac{mv^2}{2} = mgl\,(1 - cos(34)\,) \quad => \quad v = \sqrt{2gl(1 - cos(34))}$

$v = 9.8\,m/s$

b.

$T_1 = \frac{mv_0^2}{2}$

$T_2 = T_1 + U_1 - U_2 = \frac{mv_0^2}{2} + mgl\,(1 - cos(34)\,)$

$\frac{mv^2}{2} = \frac{mv_0^2}{2} + mgl\,(1 - cos(34)\,)$

$v = \sqrt{v_0^2 + 2gl(1 - cos(34))}$

$v = 10.6\frac{m}{s}$