Physics
Quiz # 10

Date Given: June 16, 2022
Date Due: June 23, 2022

Q1. (2 points) Determine the work of the force when it displaces 2 m as shown in Figure 1 (a and b).

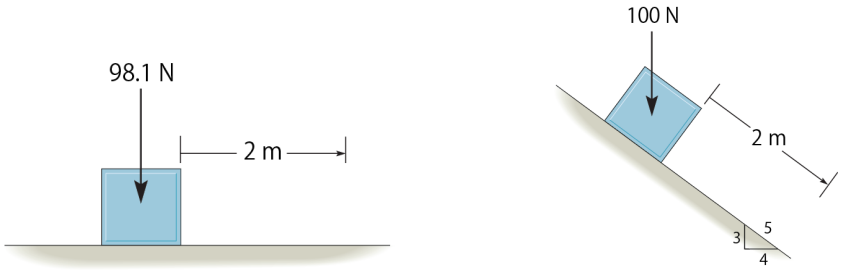

Figure 1: Illustration to Question 1.

Q2. (2 points) Determine the work of the force when it displaces 2 m as shown in Figure 2 (a and b).

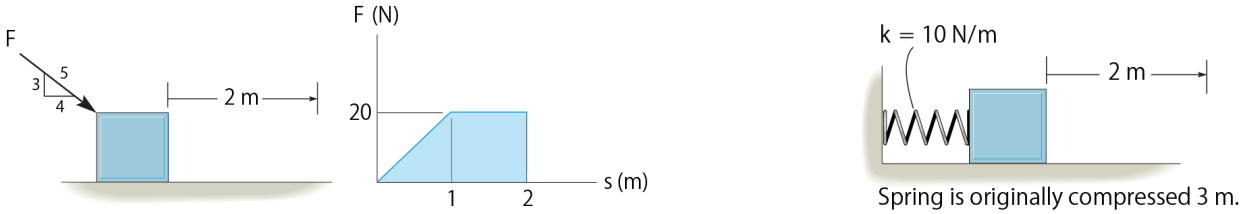

Figure 2: Illustration to Question 2.

Q3. (2 points) Determine the kinetic energy of the 10-kg block shown in Figure 3 (a and b).

Figure 3: Illustration to Question 3.

Q4. (2 points) A small box of mass m is given a speed of v_0 at the top of the smooth[1] half cylinder. Determine the angle θ at which the box leaves the cylinder if the initial speed $v_0 = \sqrt{\alpha g r}$, where g is the gravitational acceleration, r is the radius of the cylinder, and $\alpha = 1/4$.

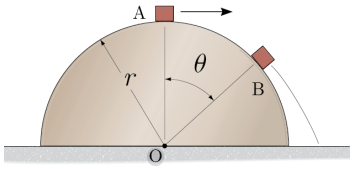

Figure 4: Illustration to Problem 4.

[1] This implies that friction is negligible.