Physics
Quiz # 8

Date Given: June 2, 2022
Date Due: June 9, 2022

Q1. (1 point) The number of coordinates required to specify the positions of all parts of a system having two degrees of freedom is:

(a) Four.

(b) One.

(c) Two.

(d) Three.

Q2. (1 point) According to Newton's second law:

(a) The net force on a particle is equal to the product of the mass of the particle with the acceleration of a particle.

(b) The net force on a particle is equal to the product of the velocity of the particle with the acceleration of a particle.

(c) The velocity of a particle is equal to the net force on the particle multiplied by the mass of the particle.

(d) The velocity of a particle is equal to the net force on the particle divided by the mass of the particle.

Q3. (2 points) The 10kg block is subjected to the forces shown in Figure 1. In each case, determine its velocity when $t = 2$s if $v = 0$ when $t = 0$.

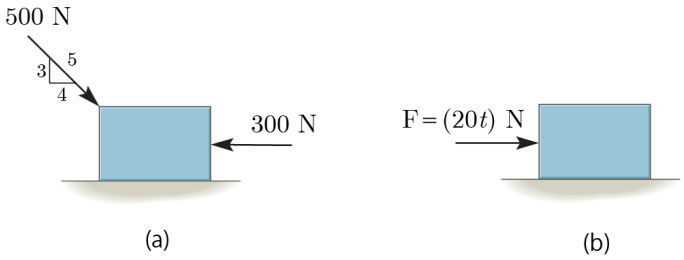

Figure 1: Illustration to Question 3.

Q4. (2 points) The 10kg block is subjected to the forces shown in Figure 2. In each case, determine its velocity at $s = 8\text{m}$ if $v = 3\text{m/s}$ at $s = 0$. Motion occurs to the right.

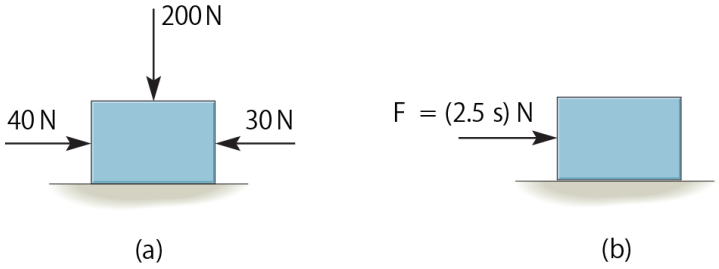

Figure 2: Illustration to Question 4.

Q5. (2 points) Write the equations of motion in the x and y directions for the 10kg block shown in Figure 3.

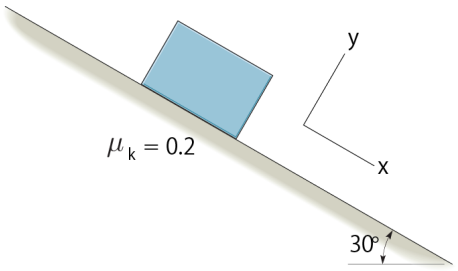

Figure 3: Illustration to Question 5.