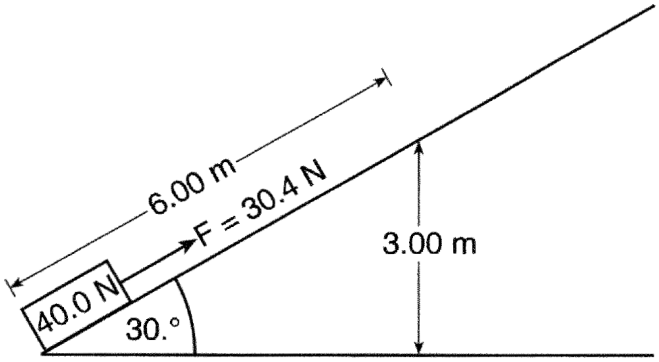
Name **Part 2 Review F**

Base your answers to questions **1** through **4** on the information and diagram below.

A 30.4-newton force is used to slide a 40.0-newton crate a distance of 6.00 meters at constant speed along an incline to a vertical heights of 3.00 meters.



1. Determine the total work done by the 30.4-newton force in sliding the crate along the incline.

2. Calculate the total increase in the gravitational potential energy of the crate after it has slid 6.00 meters along the incline. [Show all work, including the equation and substitution with units.]

3. State what happened to the kinetic energy of the crate as it slides along the incline.

4. State what happens to the internal energy of the crate as it slides along the incline.

Base your answers to questions **5** through **7** on the information below.

A roller coaster car has a mass of 290. kilograms. Starting from rest, the car acquires 3.13×10^5 joules of kinetic energy as it descends to the bottom of a hill in 5.3 seconds.

5. Calculate the magnitude of the average acceleration of the roller coaster car as it descends to the bottom of the hill. [Show all work, including the equation and substitution with units.]

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6. Calculate the speed of the roller coaster car at the bottom of the hill. [Show all work, including the equation and substitution with units.]

7. Calculate the height of the hill. [Neglect friction.] [Show all work, including the equation and substitution with units.]