UNIT V QUIZ 2

Remember in the movie *Speed* when Dennis Hopper blew the cable holding the elevator? Suppose that the mass of the elevator and passengers were 1500 kg, and the frictional force (wheels on tracks) was 9000 N.

1. Draw a force diagram for the elevator.

2. Determine the acceleration of the elevator. Be sure to show work.

3. Determine how long it would take the elevator (starting from rest) to drop 30 floors (assume each floor is 3.0 m).

4. Unbeknownst to the evil Mr Hopper, a giant spring is at the bottom of the elevator shaft. It brings the elevator from -25 m/s to a stop in 0.5 s. What average force does the spring exert on the elevator? Assume the same frictional force as in #1.