Answer on Question #44288-Physics-Mechanics-Kinematics-Dynamics
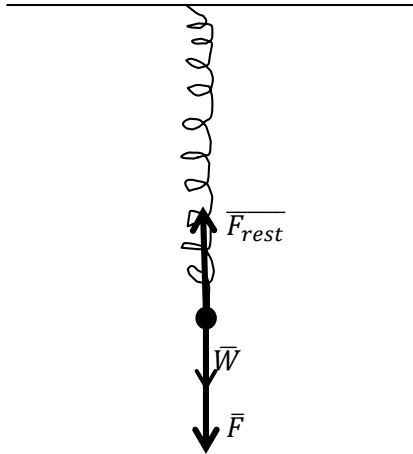
If you attach one end of a spring to the ceiling, so it hangs vertically, and pull it down towards the floor on the other end. When you then sum all the forces, should you count gravity force as one of them? Could you draw all the forces working on the spring?

Solution

Yes, we should count gravity force as one of all the forces. According to the Second Newton's Law:

$$ma = F + W - F_{restoring},$$

where F is the force of our hand pulling spring down, W is the weight of a spring, $F_{restoring}$ is the restoring force.