Name_____

Show your work, round to about three total digits, circle your answers, and label them with units. Use the convention that up is positive.

A 20.5 kg mass hangs on a rope.

1. What does the tension need to be in the rope to accelerate the mass downwards at 2.21 m/s/s?

2. What is the acceleration of the mass if the tension in the rope is 150. N?

3. What is the tension in the rope if the mass is accelerating upwards at 6.20 m/s/s?

4. What is the acceleration of the mass if the tension in the rope is 460. N?

5. The mass begins to move downward from rest, displacing itself downward 12.0 m in 2.80 s with a uniform acceleration. What is the tension in the rope during this time?