Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Physics 11

**Worksheet 5.4**

**Tension**

1. Two masses are connected by a rope over a pulley as shown.
2. What is the acceleration of the 7 kg mass (for direction, say up or down)?
3. What is the acceleration of the 13 kg mass (for direction, say up or down)?
4. How hard is the rope pulling on the 7 kg mass?
5. How hard is the rope pulling on the 13 kg mass?

7 kg

13 kg

1. The car on the left is pulled towards the left with a force of 50 N. If the rope can withstand up to 20 N before it breaks, will the rope break?

5 kg

5 kg

1. If the cart below is being pulled to the right with a force of 20 N and the coefficient of friction between the block and the ground is 0.15, what is the tension in the rope?

7 kg

5 kg

Answers: 1a) 2.94 m/s2 up 1b) 2.94 m/s2 down 1c) 89.2 N up 1d) 89.2 N up

2) Yes. The rope would have to withstand 25 N in order to not break. 3) 15.95 N