Physics 100 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Practice Quiz #2: Newton’s Laws**

1. The first table, below, is a timeline detailing a parachuter’s descent from an airplane. Use the timeline and your knowledge of physics to **complete the second table. You will only be graded on your answers in the white cells.**

|  |  |
| --- | --- |
| **Time** | **Event** |
| **0s** | **Parachuter steps out of plane** |
| **20s** | **Parachuter reaches a first terminal velocity of 58m/s** |
| **75s** | **Parachuter pulls chute cord. Chute deploys.** |
| **80s** | **Parachuter reaches a second terminal velocity of 4m/s** |
| **700s** | **Parachuter lands** |

**Don’t forget proper units!**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Parachuter Mass** | **Parachuter Weight** | **Air Resistance (plus direction)** | **Fnet**  **(plus direction)** | **Acceleration**  **(direction)** | **Speed** |
| **0s** | **50 kg** |  |  |  |  |  |
| **16s** |  |  | **400 N Upward** |  |  | **50m/s** |
| **72s** |  |  |  |  |  |  |
| **76s** |  |  | **900N Upward** |  |  | **41m/s** |
| **500s** |  |  |  |  |  |  |

**Force Problems and Diagrams:**  Solve these problems by drawing diagrams showing all of the individual forces.

10. A 6kg box is sliding with a velocity of 5m/s. The force of friction acting on the block. The block’s acceleration is 3m/s2. If a person is pushing the block with a force of 30N, what is the force of friction that is acting on the box? **Draw the box and the ground, and all of the forces that are acting on the box. Use the correct names of the forces.**

11. A student has a mass of 80kg. He is standing on a bathroom scale in an elevator, and the scale reads 560N. What is the student’s acceleration? **Draw the student, the elevator, and the scale, and all of the forces that are acting on the student. Use the correct names of the forces.**