Although your pilot learned to drive in New York, he/she was unprepared for interstellar space traffic. As a result, your entire crew has crash-landed on a new planet.

Armed only with your AS102 textbook and your innate knowledge of physics, your crew’s task is to be rescued before your limited oxygen supply is gone.

Your radio works, but you need to describe your location and the physical properties of your planet to the rescuers. Luckily, they also have a copy of your AS102 textbook.

So, by agreeing to measure all quantities in units of the textbook height and weight, you can describe your location and properties.

Your oxygen supply is limited, so you need to describe the following as quickly as possible. Give your numerical answer as well as a brief but thorough description of the method used to determine the answer.

1) The height of your average crew member [in textbooks].

2) The weight of your average crew member [in textbooks].

3) If the rescue ship can lift the equivalent of 1,000 textbooks per trip to the planet’s surface, how many of you can be saved on the first rescue trip?
4) The volume of the room containing your oxygen [in cubic textbooks].

5) The rate at which your crew is consuming oxygen [in cubic textbooks per heartbeat].

6) An estimate of how long your oxygen supply can hold out.