

Q1 A parachutist has a mass of 70 kg. His parachute has a mass of 10 kg.

- a) What is their combined weight?
- b) At the time this picture was taken, the force upwards due to air resistance was 670 N. What was the resultant force downwards?
- c) What was the parachutist's acceleration at that point in time?

Q2 Victor and his dog weigh 1176 N together. Victor has a mass of 63 kg.

- a) What is the mass of Victor's dog?
- b) Victor, his dog and his saxophone are standing on a box. Victor's saxophone has a mass of 2 kg and the box weighs 30 N. What is the total weight of them all?
- c) Victor's dog jumps off the box. About half way to the ground, his acceleration is  $8 \text{ m/s}^2$ . What is the upward force on the dog, due to air resistance, at that point?

Q3 Paddy O'Paddle and his boat have a mass of 125 kg together. The boat weighs 417 N.

- a) What is the mass of the boat?
- b) What is the combined weight of Paddy and his boat?
- c) What is Paddy's weight?
- d) As he goes over a waterfall in the boat, Paddy's acceleration is  $6.5 \text{ m/s}^2$ . What is the upward force on Paddy and his boat due to air resistance as they fall?