7. The terminal velocity v_t of a skydiver is given by the relationship

$$v_t = \sqrt{\frac{2mg}{\rho A C_d}}$$

where

m is the mass of the skydiver in kg

g is the gravitational field strength in N kg^{-1}

C_d is the drag coefficient

ρ is the density of air in kg m^{-3}

A is the area of the skydiver in m^2.

When in freefall, a skydiver of mass 95 kg has a drag coefficient of 1·0 and a terminal velocity of 44 m s^{-1}.

The gravitational field strength is 9·8 N kg^{-1} and the density of air is 1·21 kg m^{-3}.

The area of the skydiver is

A 0·59 m^2

B 0·79 m^2

C 0·89 m^2

D 4·2 m^2

E 35 m^2.