MIE 100S - Quiz number 1a: Jan 12, 2015: quiz duration = 20 minutes

A rocket travels straight upwards from the ground with an initial upwards speed of $v = 30\frac{m}{s}$. Its acceleration is dependent on the speed according to: $a = 175 \; \frac{1}{v^2} \; m/s^2$. Ignore the rotation of the earth.

(a) What is the particle's speed at t = 4s?
(b) How long will it take for the rocket to reach a speed of 50 m/s?