An air plane travels 280 m through the runway before taking off. It starts from rest, moves with constant acceleration and takes off after 8 s. What is its speed when it takes off?

$S = 1/2 (u + v) t$

S is distance, 280 meters

u is initial velocity, zero

v is final velocity, what we are looking for

t is time spent taking off

280 m = 1/2 (0 + v) 8 secs

280 m = v (4 secs)

v = 280 m/4 secs = 70 m/sec