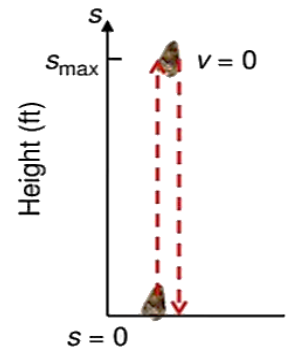


HW 31: Unit 3.7 Rate of Change Day 2 - Modeling Vertical Motion

A dynamite blast propels a heavy rock straight up with a launch velocity of 160 ft/sec (about 109 mph). It reaches a height of $s(t) = 160t - 16t^2$ ft after t seconds.

(a) How high does the rock go?



(b) What is the velocity and speed of the rock when it is 256 ft above the ground on the way up? What is the velocity and speed of the rock when it is 256 ft above the ground on the way down?

(c) What is the acceleration of the rock at any time t during its flight (after the blast)?

(d) When does the rock hit the ground?