

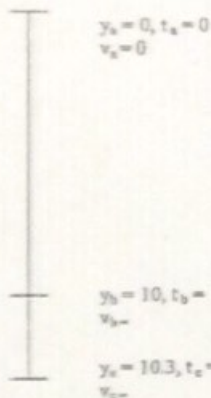
High dive into 1 foot of water

Google: Stan Lee high diver

<http://www.history.com/shows/stan-lees-superhumans/videos/super-high-diver#super-high-diver>

A man jumped from a height of 33 feet (10 meters) and "belly flopped" into a small shallow pool of water 12 inches (30 cm) deep. (He comes to a stop after sinking 30 cm into the water.) Note: You can use $g = 10 \text{ m/sec}^2$. Using $g = 10$ instead of 9.8 has only a minor effect on the answers below.

It will be convenient to let $y = 0$ at the top of the high dive and define down as the positive direction.



a) Draw a motion diagram.
The given values are on the diagram.

b) Find the velocity of the diver as he first hits the water. (What is his speed after falling 10 m?)
(The video claims 34 mph. Is this correct?)

c) What is his deceleration as he slows to a stop in a distance of 30cm?

d) How many g's does he feel as he slows to a stop? (The video says he feels 40 g's. Is this accurate?)