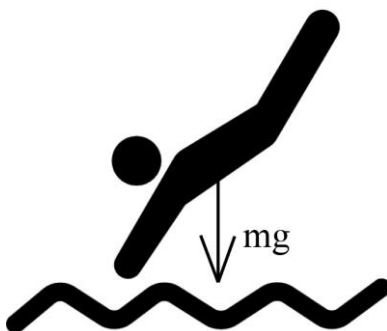


Question #59679, Physics / Other

a diver leaps from a tower with an initial horizontal velocity component of 7m/s and an upward velocity component of 5m/s. Find the component of it's velocity along x and y axis after 1.5 sec

Solution.

The forces acting on the diver (neglecting the air drag):



Since no horizontal forces are involved, the horizontal velocity is constant:

$$x(t) = V_{0x}t;$$

$$V_x(t) = V_{0x};$$

$$V_x(1.5) = 7 \text{ m/s}$$

Vertical displacement:

$$y(t) = V_{0y}t - \frac{gt^2}{2};$$

$$V_y(t) = V_{0y} - gt;$$

$$V_y(1.5) = 5 - 9.8 \times 1.5 = -9.7 \text{ m/s}$$