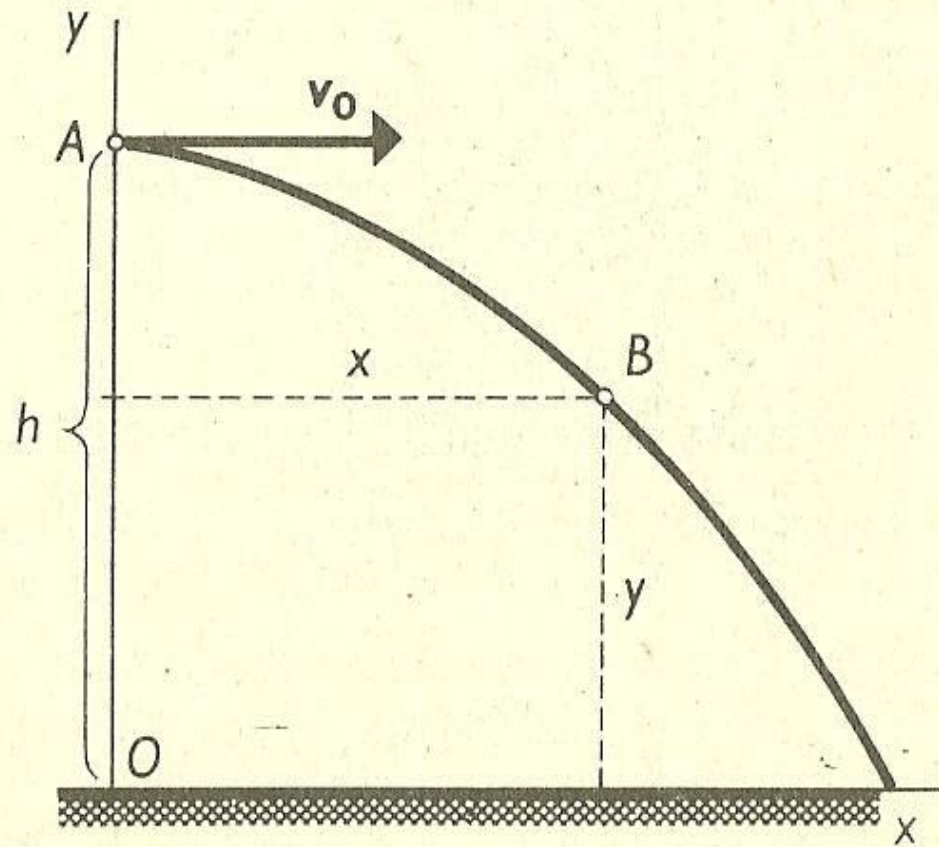


# A body thrown horizontally



Obr. 7-4

Motion of a body thrown horizontally can be divided into two parts:

1. In the horizontal direction it is moving at uniform motion:

$$s = v_0 \cdot t,$$

where  $v_0$  – initial speed of a body ( $\text{m}\cdot\text{s}^{-1}$ )

$t$  – time needed to reach the ground (s)

2. In the vertical direction it is moving at uniform accelerated motion with no initial speed:

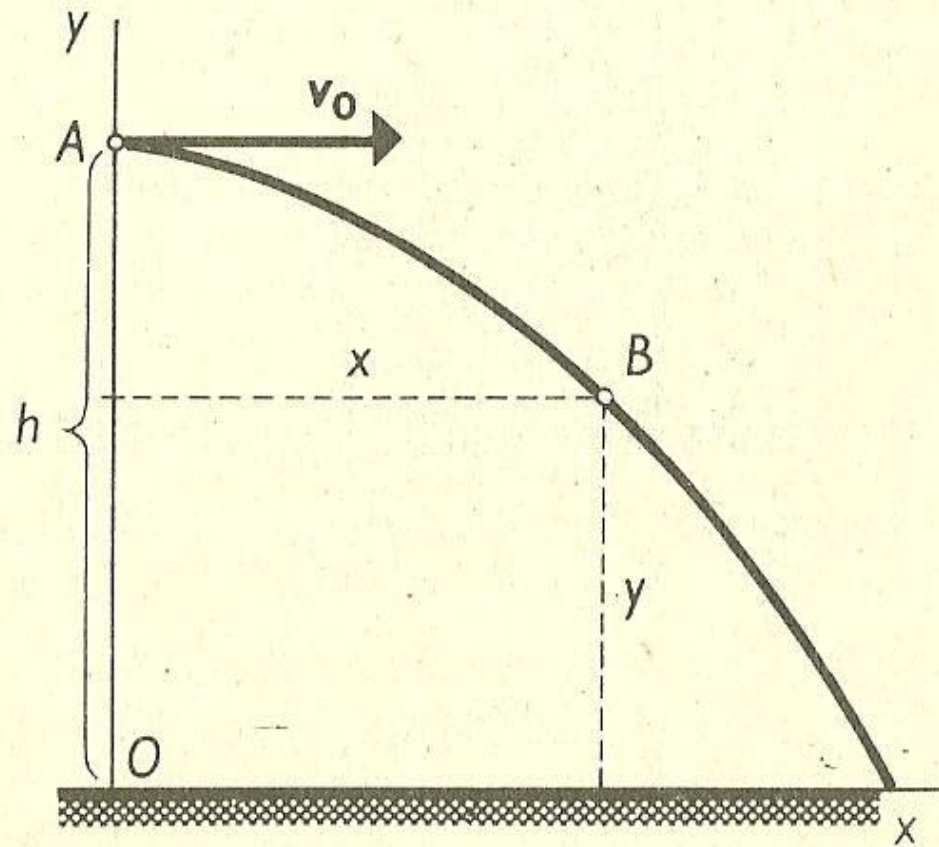
$$h = \frac{1}{2} g t^2,$$

where  $h$  – height (m)

$g$  – acceleration due to gravity ( $\text{m}\cdot\text{s}^{-2}$ )

$g = 9,81 \text{ m}\cdot\text{s}^{-2}$

$t$  – time to reach the ground (s)



Obr. 7-4

## Question:

A ball was thrown horizontally from the window at a height of 15 metres with initial speed of  $10 \text{ m.s}^{-1}$ . Calculate the time needed to reach the ground and distance at which it will reach the ground.

## Homework: (on piece of paper)

A ball was thrown horizontally from the window at a height of 80 metres with initial speed of  $15 \text{ m.s}^{-1}$ . Calculate the time needed to reach the ground and distance at which it will reach the ground.