

$$v_1 = 25 \text{ m/s}, v_2 = -15 \text{ m/s}, T = 5 \text{ s}.$$

The coordinates of the first ball and the second balls after  $t$  seconds are

$$y_1(t) = v_1 t - \frac{gt^2}{2},$$

$$y_2(t) = v_2 t - \frac{gt^2}{2},$$

respectively, where  $g = 9.8 \text{ m/s}^2$  is the acceleration of gravity and the positive direction of the Y axis is upward. The distance between the balls after  $t = T$  is

$$S = |y_1(T) - y_2(T)| = (v_1 - v_2)T = 200 \text{ m}.$$

The velocities of the balls are

$$u_1 = v_1 - gT = -24 \frac{\text{m}}{\text{s}},$$

$$u_2 = v_2 - gT = -24 \frac{\text{m}}{\text{s}},$$

The sign "minus" means that the both velocities are directed downward.