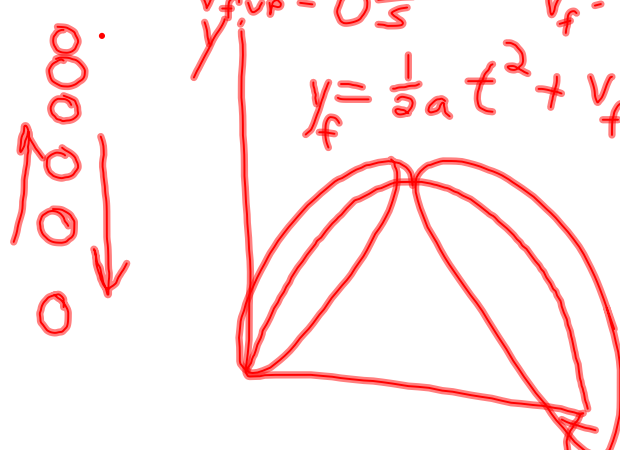


toss a ball up
 up (const. acc) Down (free fall)

$v_{i,up} = +$
 $a = -9.8 \frac{m}{s^2}$
 $v_{f,up} = 0 \frac{m}{s}$
 y_i

$v_{i,down} = 0 \frac{m}{s}$
 $a = -9.8 \frac{m}{s^2}$
 $v_f = -v_{i,up}$ (when reaches starting pt)
 $y_f = \frac{1}{2} a t^2 + v_f t + y_i$

$t_{up} = t_{down}$



A series of circles representing the ball's position at equal time intervals, with an upward arrow on the left and a downward arrow on the right.

Oct 26-10:13 AM

pg 70 #32
 $t = 0.6 s$

A & B
 $v_{iA} = 0 \frac{m}{s}$ (free fall)
 $\Delta y = v_i t + \frac{1}{2} a t^2$
 $y_f - y_i = v_i t + \frac{1}{2} a t^2$
 $\rightarrow y_f = \frac{1}{2} a t^2 + v_i t + y_i$
 $y_{fA} = \frac{1}{2} (-9.8 \frac{m}{s^2}) t^2 + 0 (0.6) + 15 m$

$v_{iB} = 25 \frac{m}{s}$ (const acc.)
 ignore air resistance.

When will they meet? Δt
 $y_{fB} = \frac{1}{2} (-9.8 \frac{m}{s^2}) t^2 + 25 \frac{m}{s} (0.6) + 0$



A vertical line representing a height of 15m. Object A is at the top, and object B is at the bottom. Arrows indicate their downward motion.

Oct 26-10:22 AM

pg 70 #31

free fall
 $a = -9.8 \frac{m}{s^2}$

therefore $\Delta y = -76 m$

$v_i = 0 \frac{m}{s}$

$\Delta t = ?$

$\Delta y = \frac{1}{2} a t^2 + v_i t$

$-76 m = \frac{1}{2} (-9.8 \frac{m}{s^2}) t^2 + (0 \frac{m}{s}) t$

$t = \frac{\pm \sqrt{76 \frac{m}{s^2}}}{\sqrt{-4.9 \frac{m}{s^2}}} = \boxed{3.945}$

Oct 26-10:34 AM