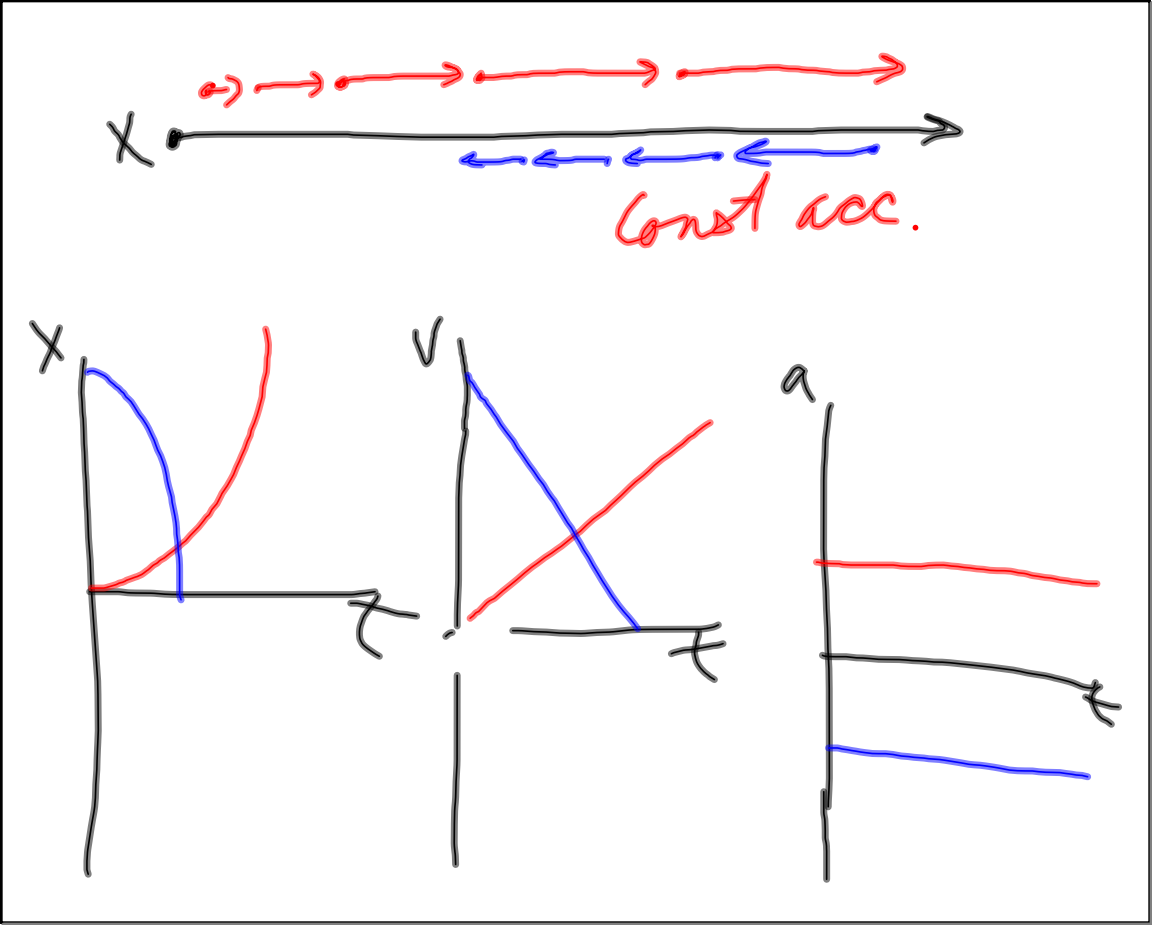
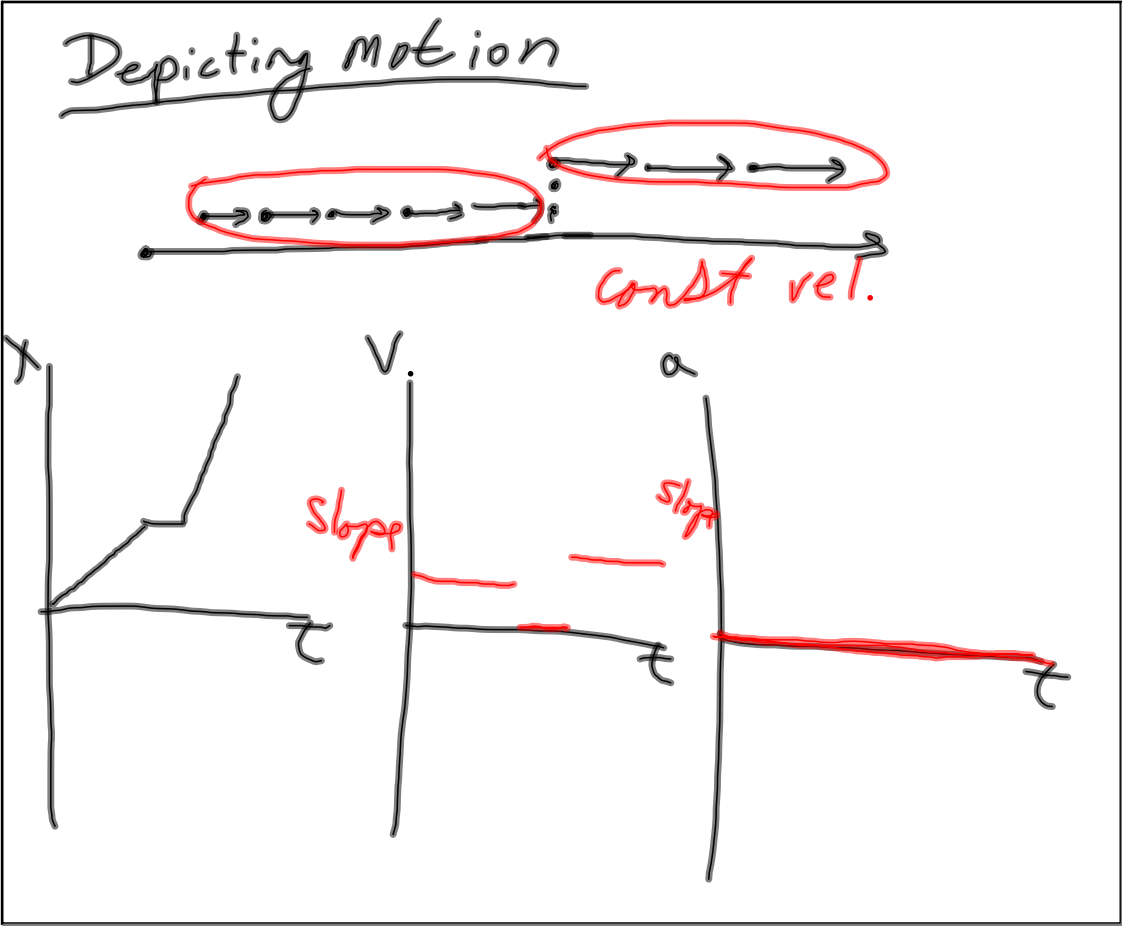
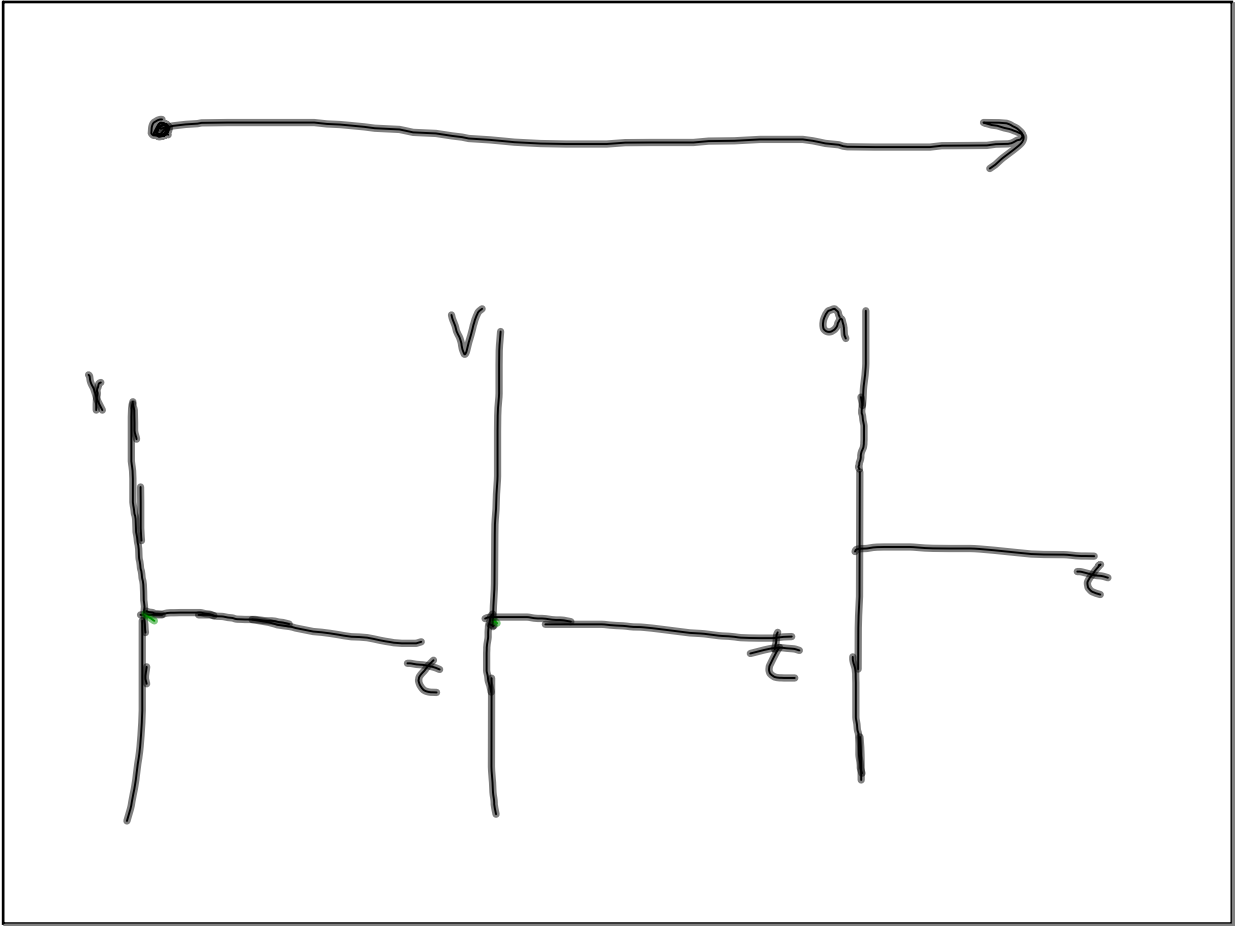




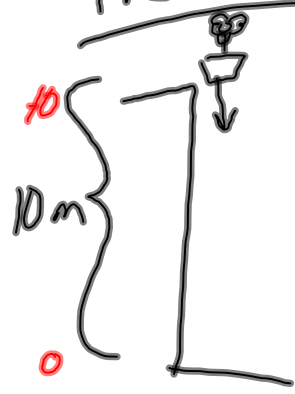


Nov 16-7:42 AM

$\frac{v}{a}$	$\frac{a}{v}$	<u>Speeding up/down or resting</u>
+	+	speeding up
-	-	speeding up
+	-	slowing down
-	+	slowing down
0	0	rest
+	0	const. vel.
-	0	const. vel.

Nov 16-7:50 AM

Free fall - const acc.
 pot drops off ledge.



10m
0

How long before it hits the ground?

$v_i = 0 \frac{m}{s}$
 $a_g = -9.8 \frac{m}{s^2}$
 $\Delta y = -10 m$
 $\Delta t = ?$
 $v_f = X$

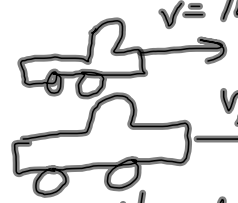
$\Delta y = \frac{1}{2} a t^2 + v_i t$
 $-10 m = \frac{1}{2} (-9.8 \frac{m}{s^2}) t^2 + (0) t$

$t = \sqrt{\frac{-2 \Delta y}{a}} = \sqrt{\frac{-2(-10 m)}{-9.8 \frac{m}{s^2}}} = 1.9 s$

Nov 16-7:59 AM

Const acc + const. vel.

$v = 100 \frac{km}{h}$ const vel.
 $v_i = 80 \frac{km}{h}$ $a = 100 \frac{km}{h \cdot s}$ const acc.



will the police catch them before the border which is 1.5 km away?

$v = \frac{\Delta x}{\Delta t}$
 $100 \frac{km}{h} = \frac{1.5 km}{t}$
 $t =$

$\Delta y = \frac{1}{2} a t^2 + v_i t$
 $1.5 km = \frac{1}{2} (100 \frac{km}{h \cdot s}) t^2 + (80 \frac{km}{h}) t$
 Quadratic

Nov 16-8:07 AM

Tossing ball up.

What velocity does the ball have at the bottom?

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

$v_i = +10 \frac{m}{s}$

$a_g = -9.8 \frac{m}{s^2}$

$\Delta t = X$

$v_{f, Top} = 0 \frac{m}{s}$

$\Delta y = -1.5 m$

$v_f \text{ bottom} = ?$

$0 m - 1.5 m = -1.5 m$

$y_f - y_i =$

$1.5 m$

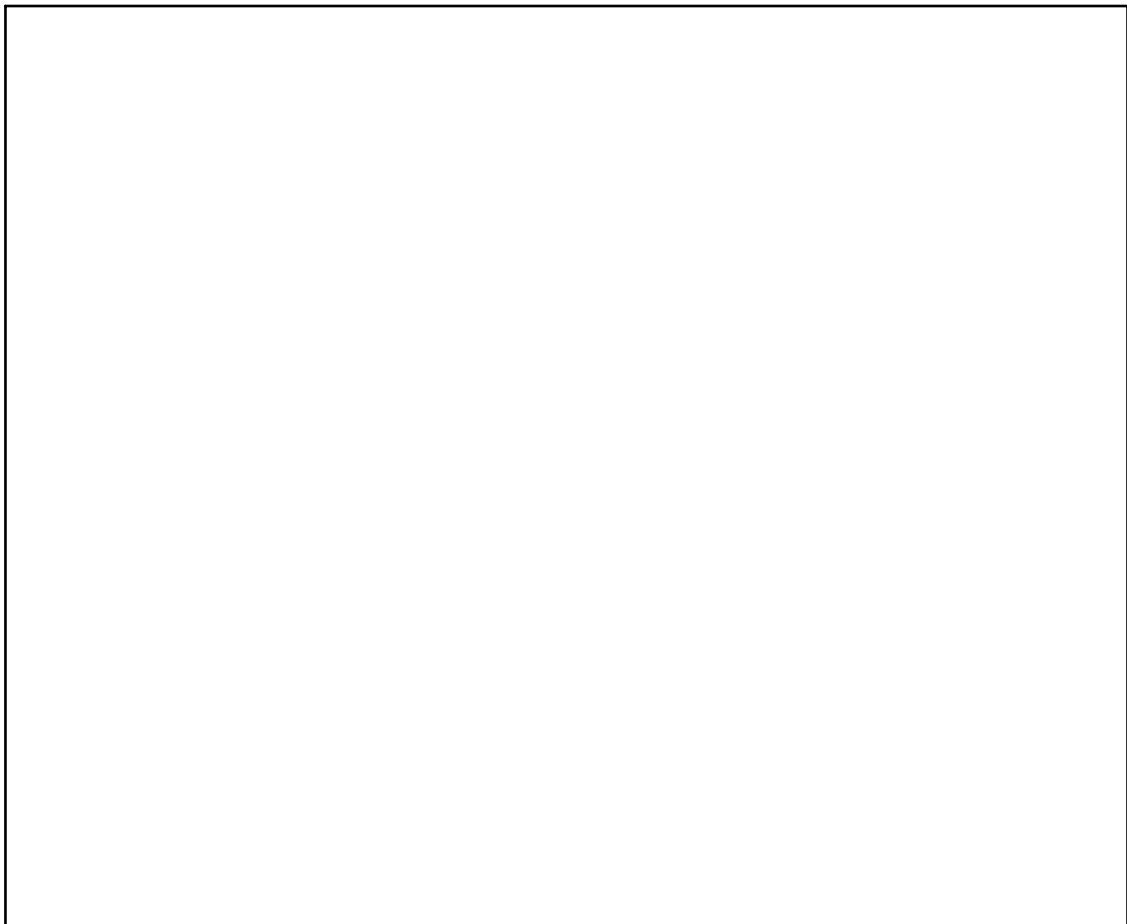
$v_i = +10 \frac{m}{s}$

$v_f = ? = -10 \frac{m}{s}$

$v_f^2 = v_i^2 + 2a\Delta y$

$v_f = \pm \sqrt{(10 \frac{m}{s})^2 + 2(-9.8 \frac{m}{s^2})(-1.5 m)}$

Nov 17-7:56 AM



Nov 17-8:07 AM