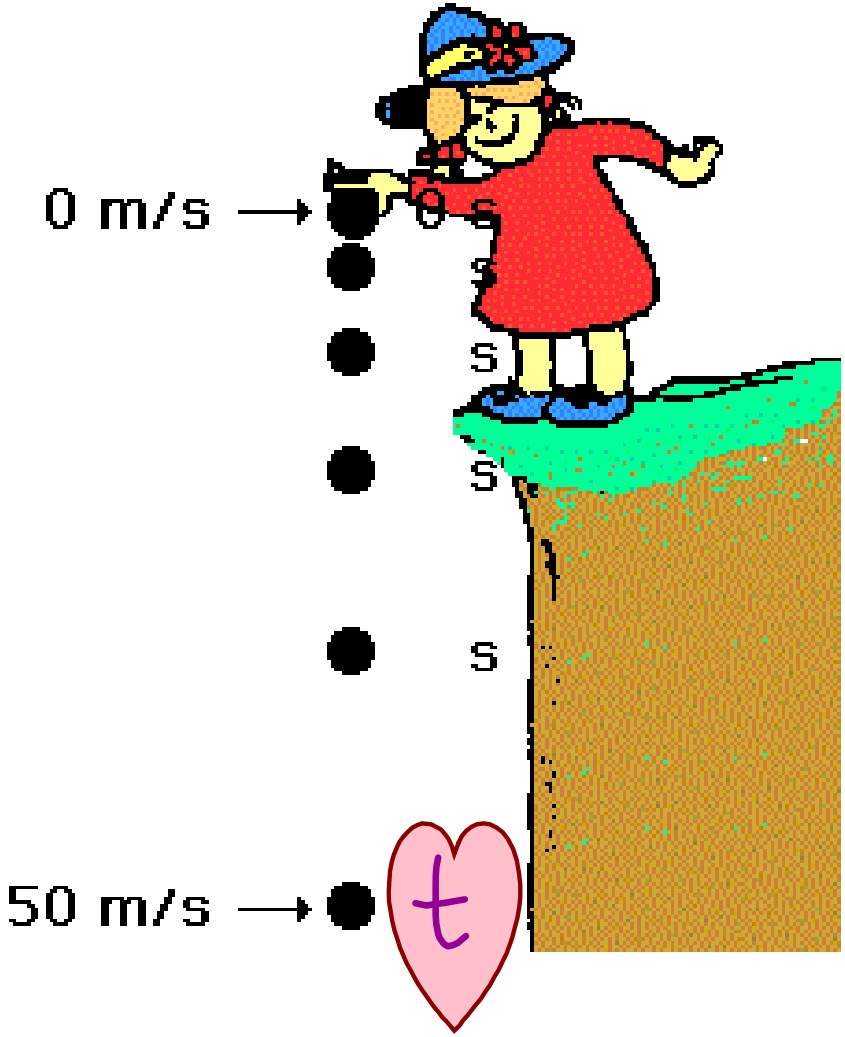
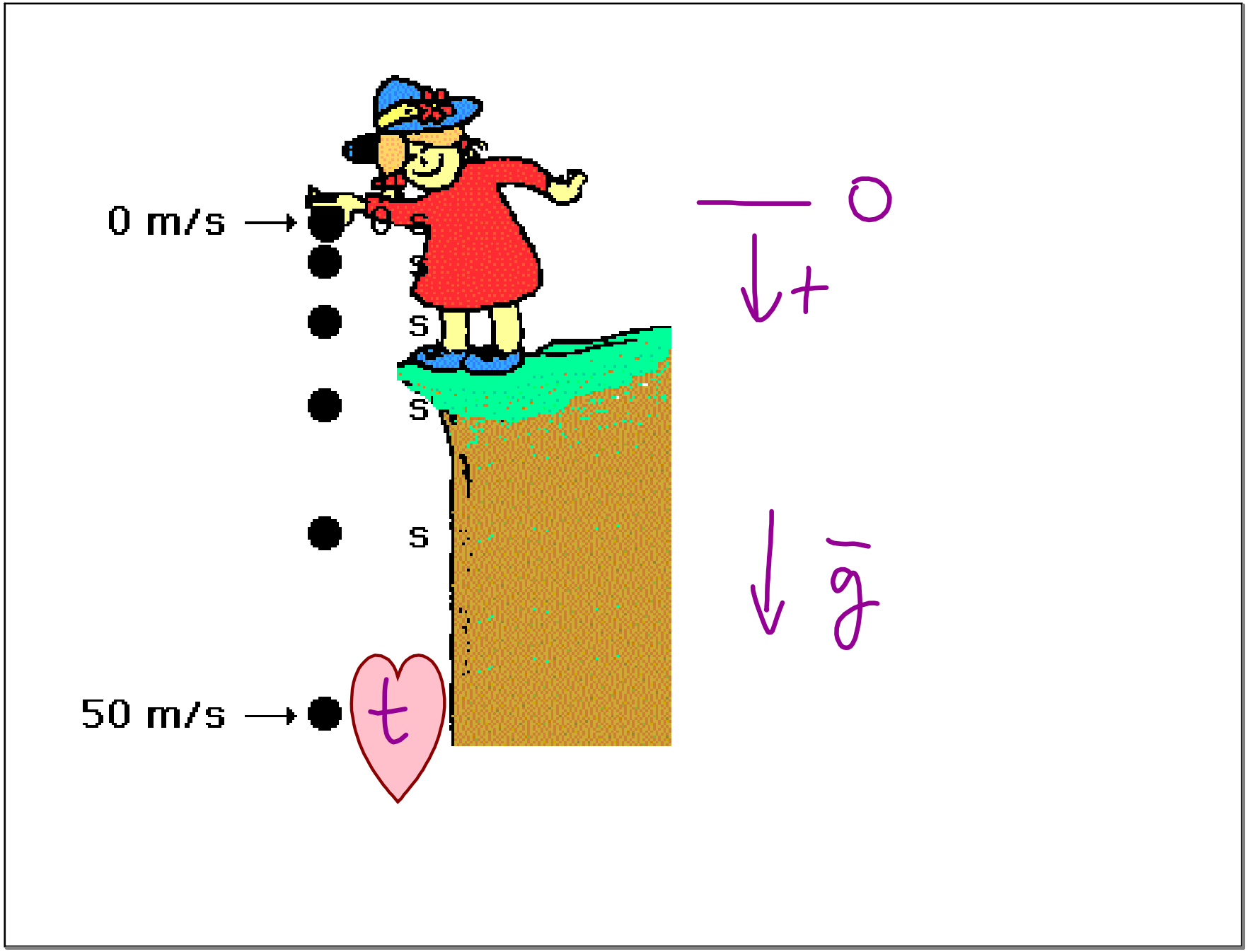
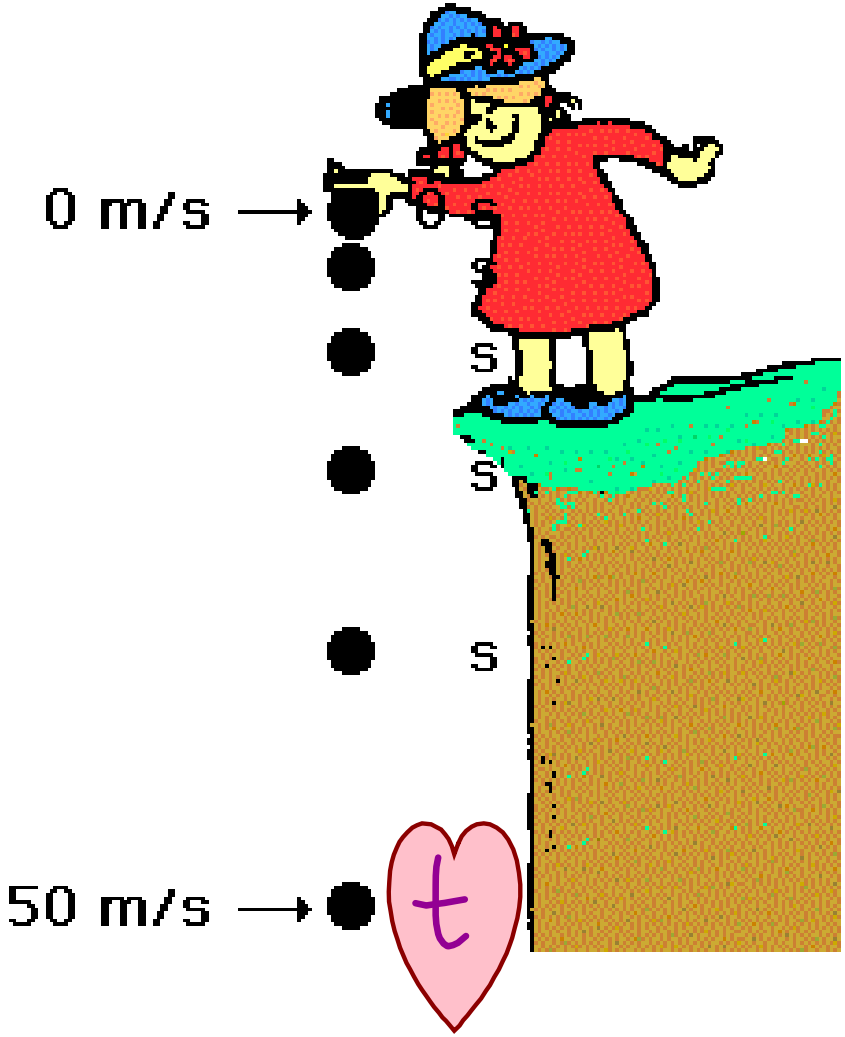
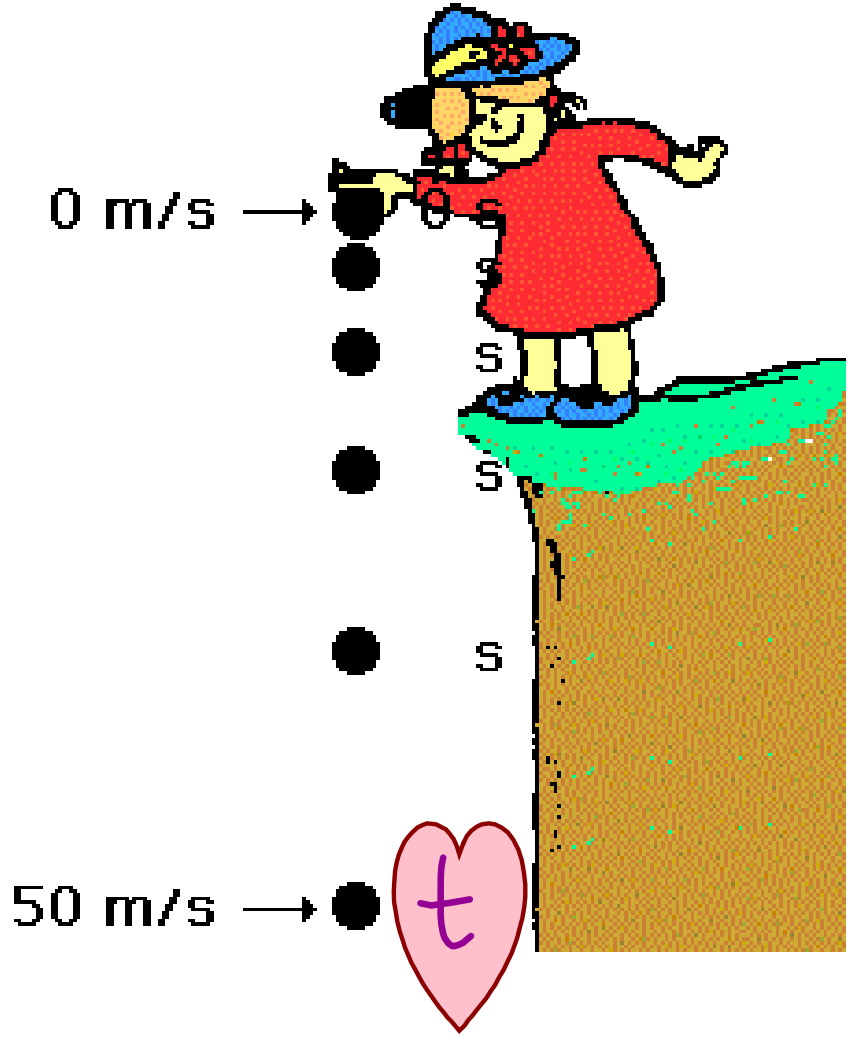
EJEMPLO


0 m/s
s
s
s
s
50 m/s
t


0 m/s
50 m/s
t
O
+
g



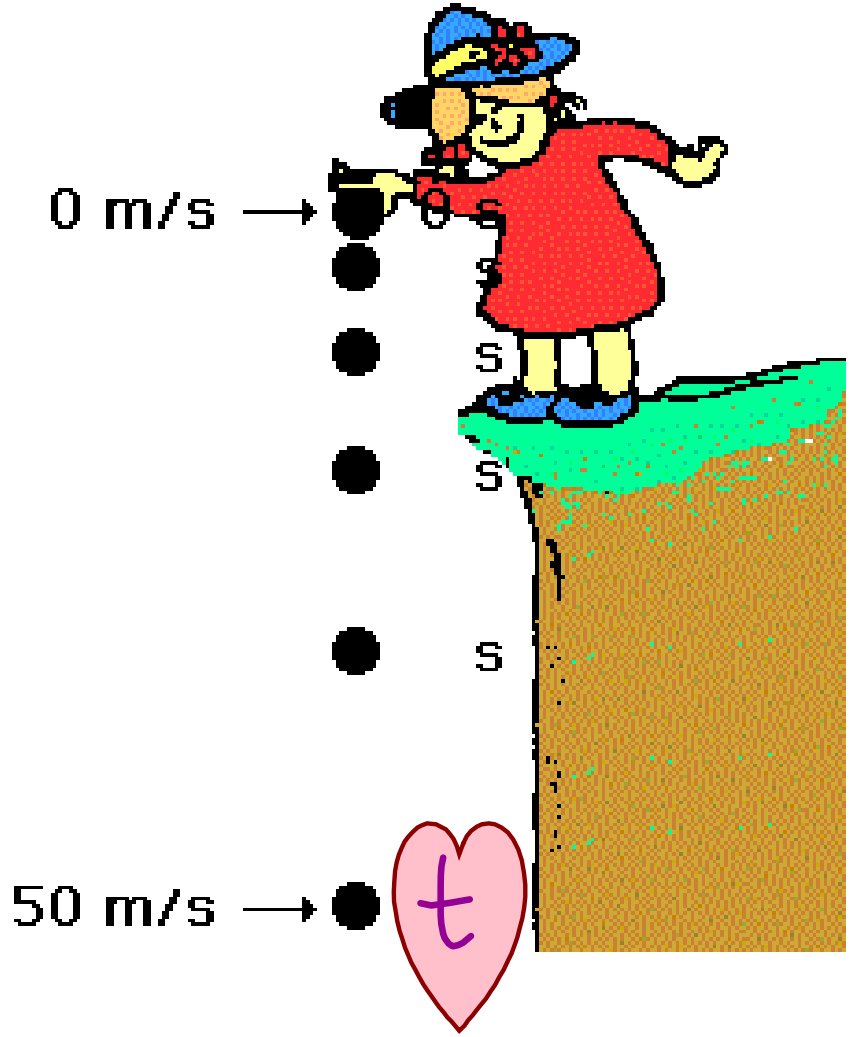
$$v = g\,t$$



$$V = g\,t$$

$$t = \frac{V}{g} = \frac{50}{9'8}$$

$$= \heartsuit\,s$$



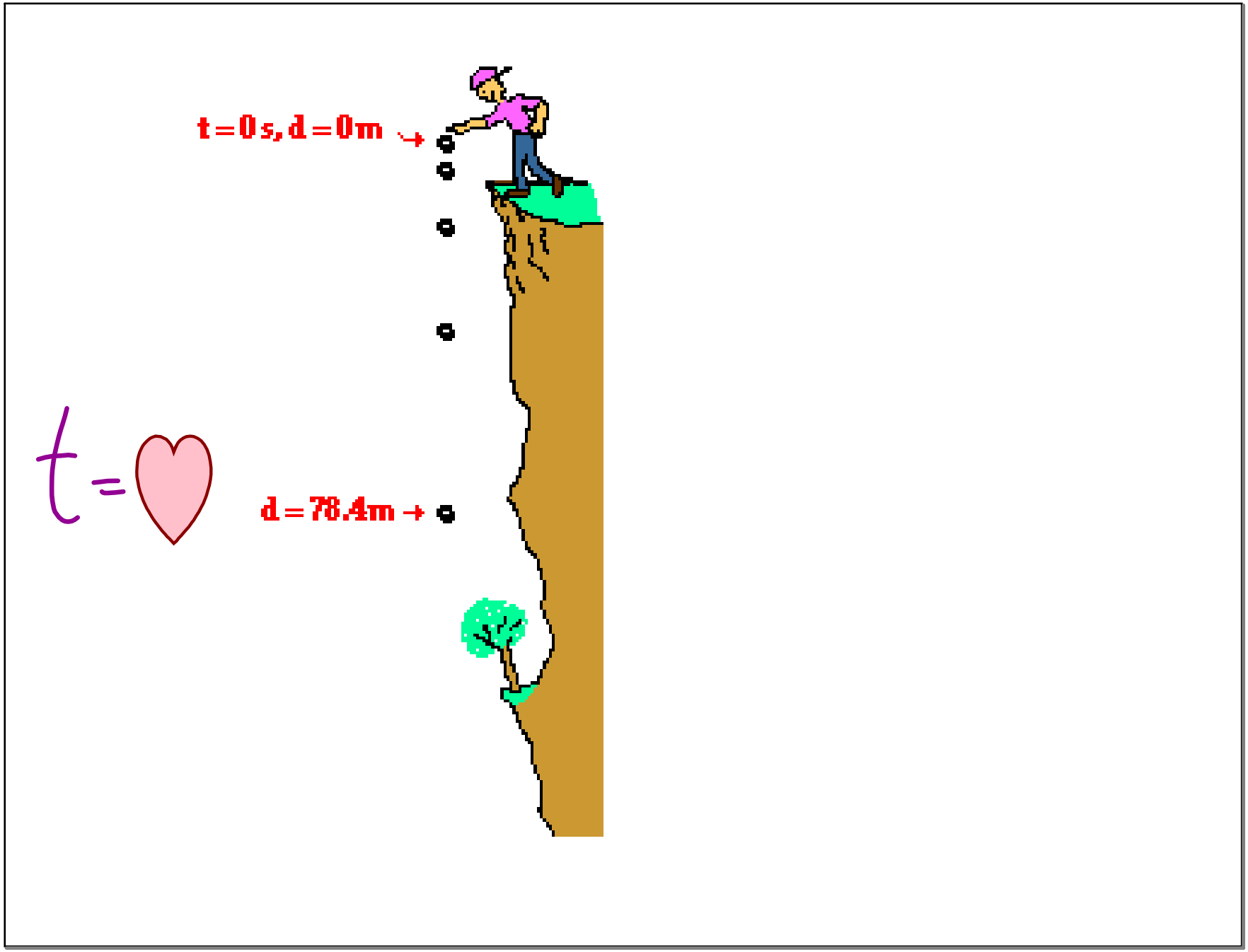
$$V = g\,t$$

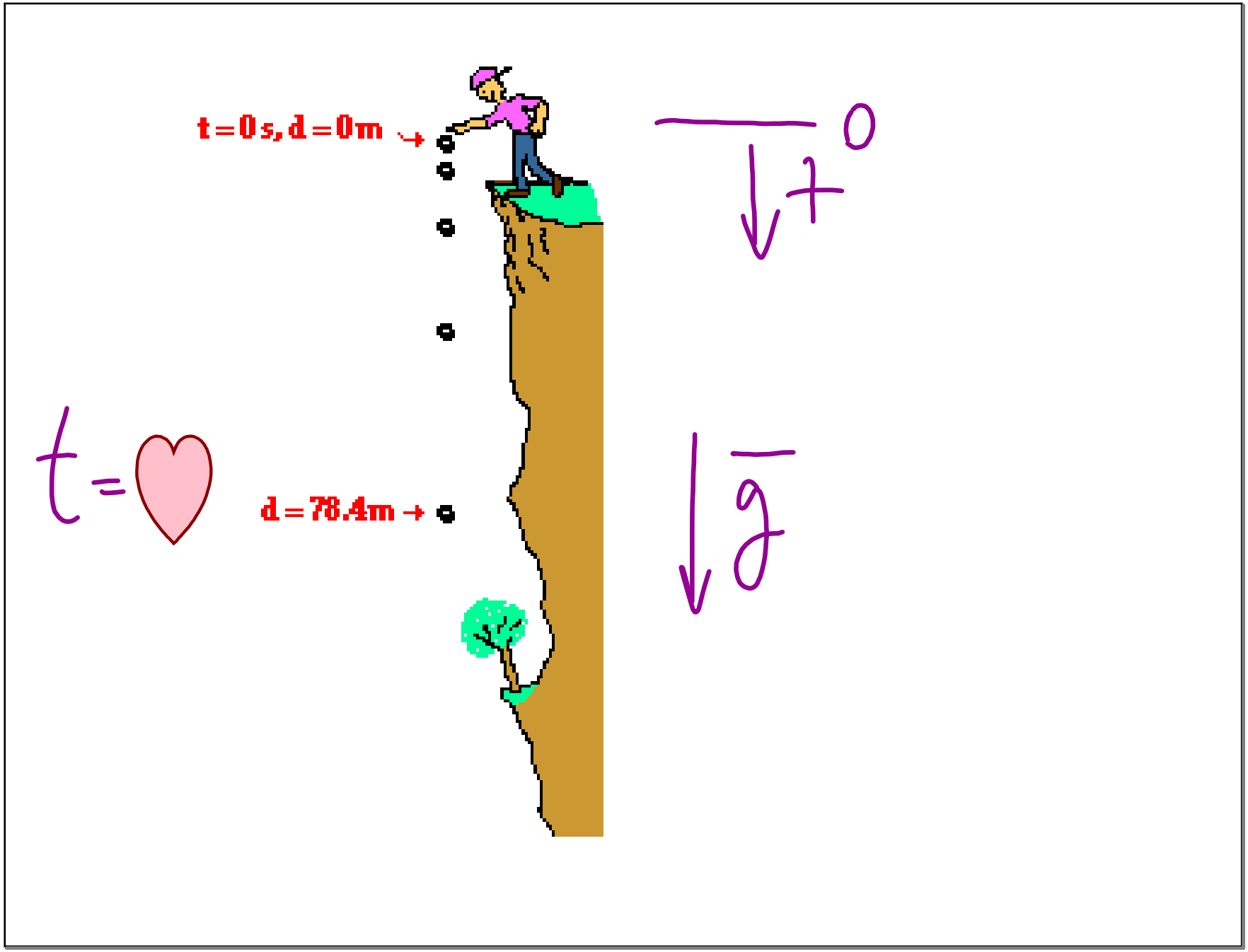
$$t = \frac{V}{g} = \frac{50}{9'8}$$

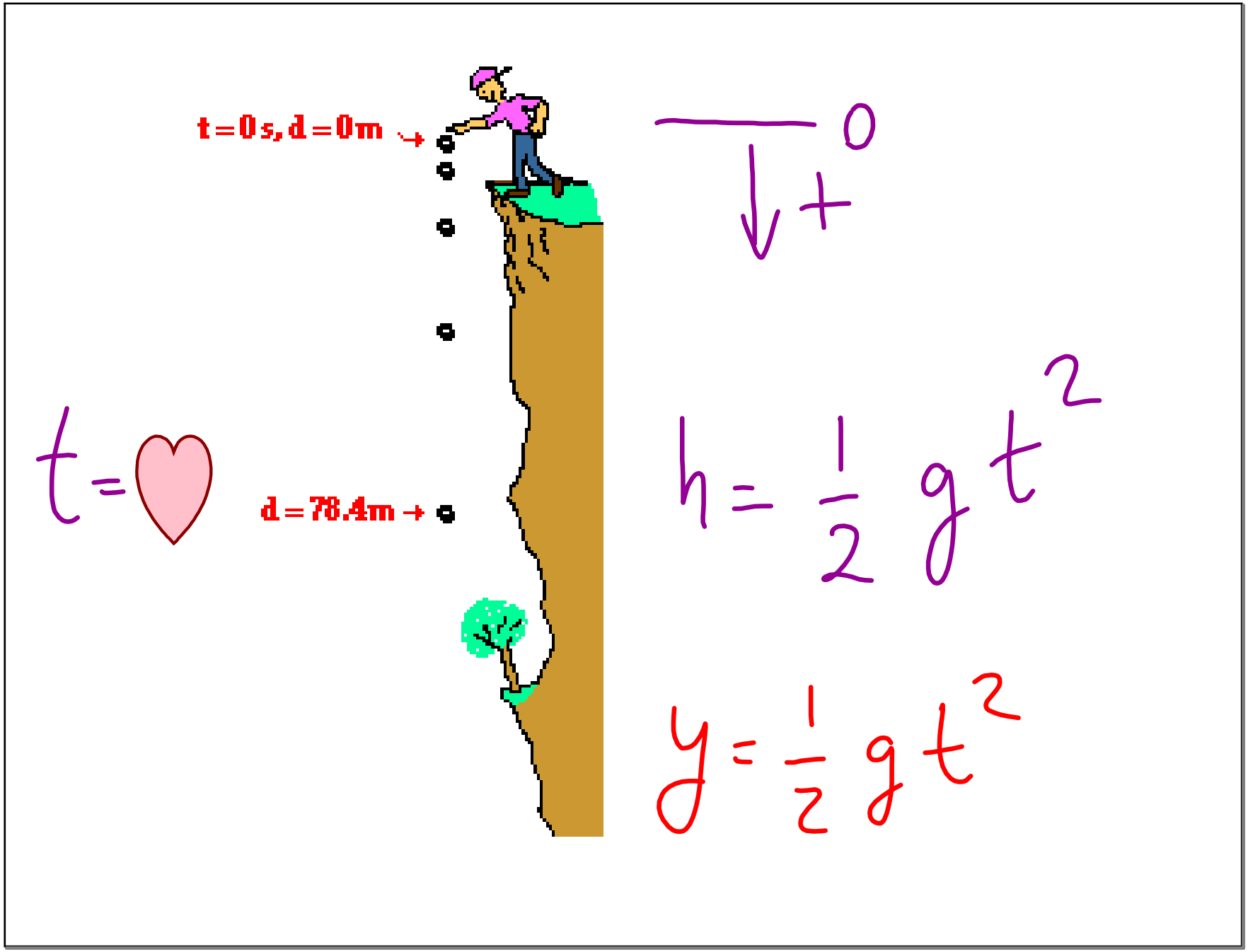
$$= 5'1\ s$$

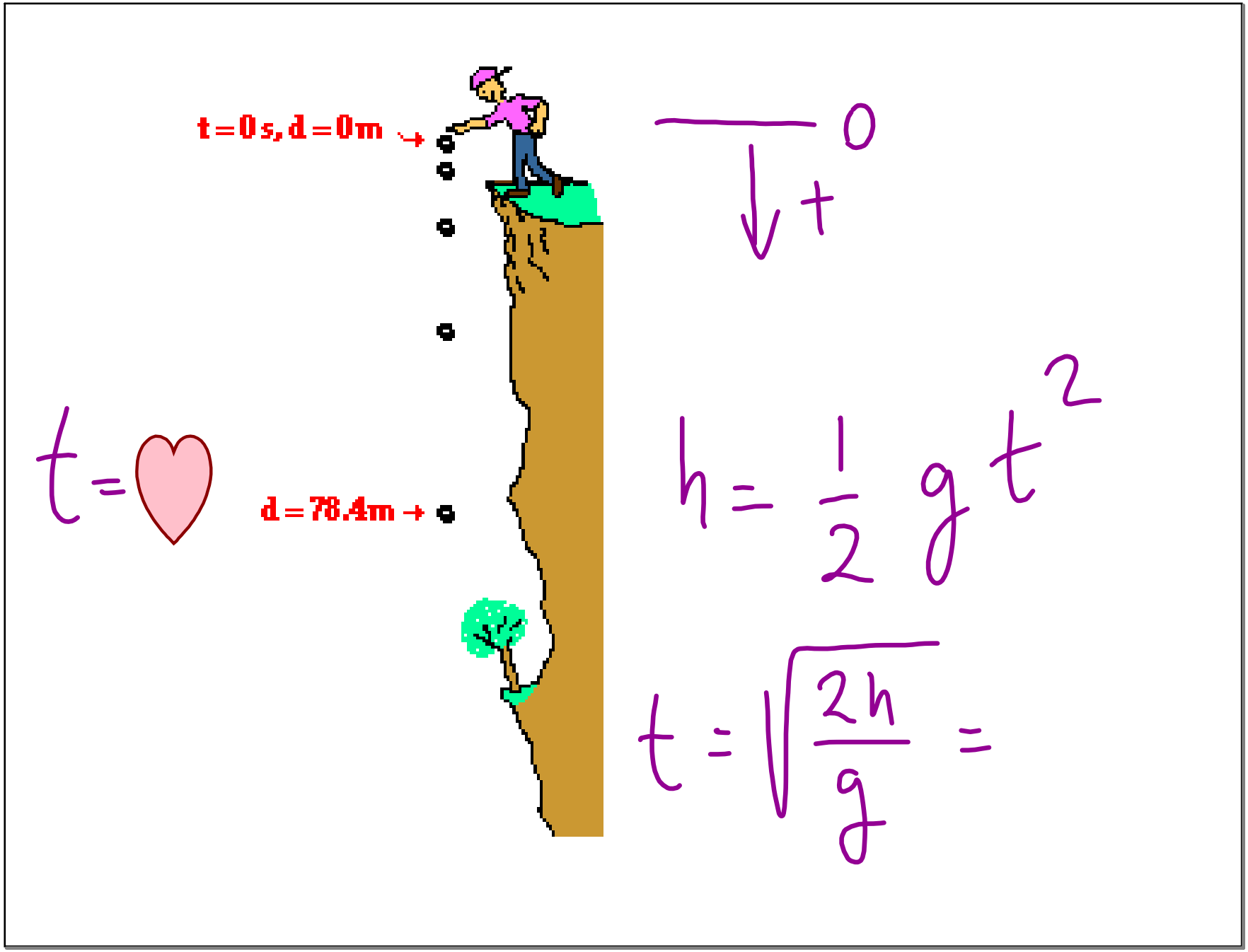
EJEMPLO

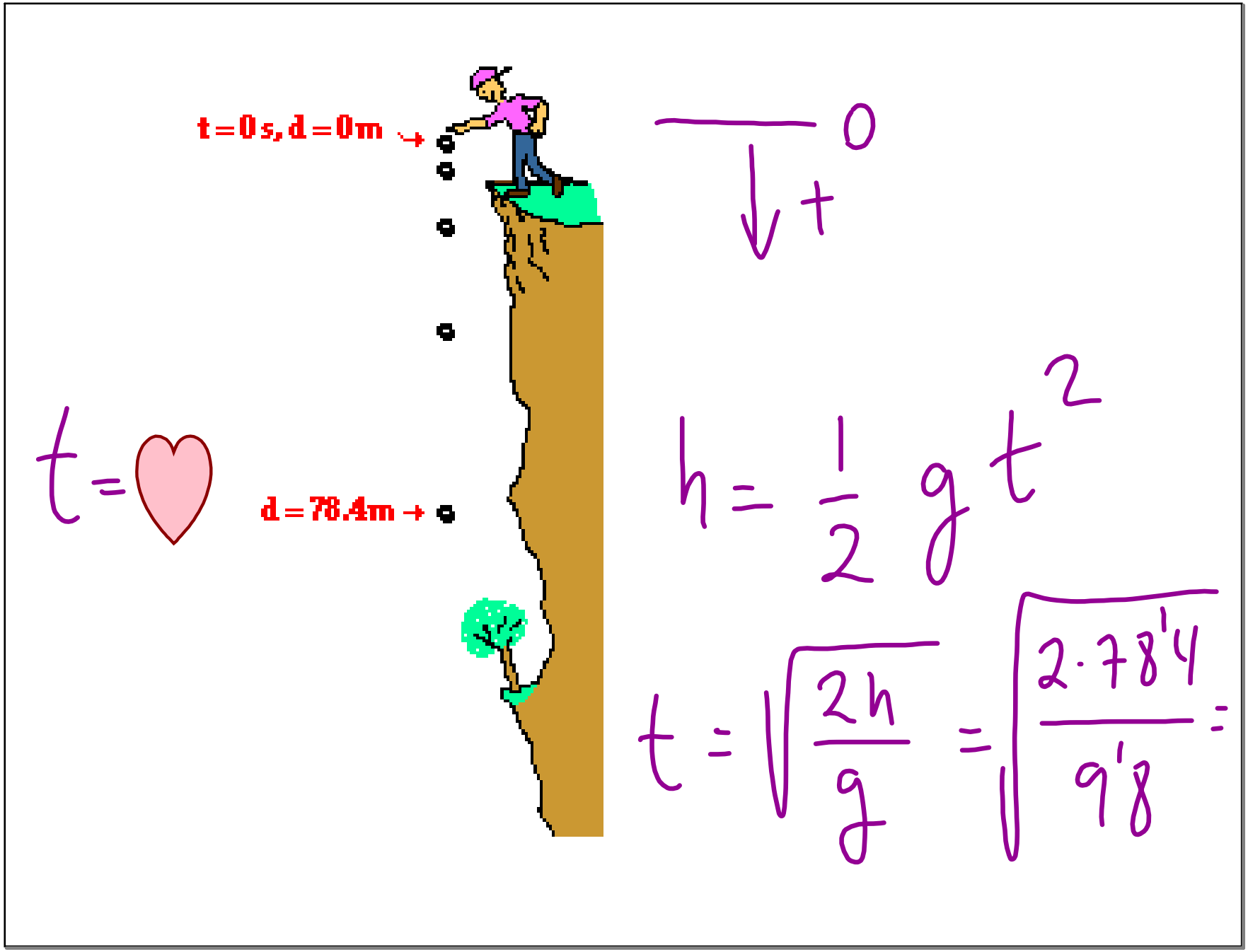
1

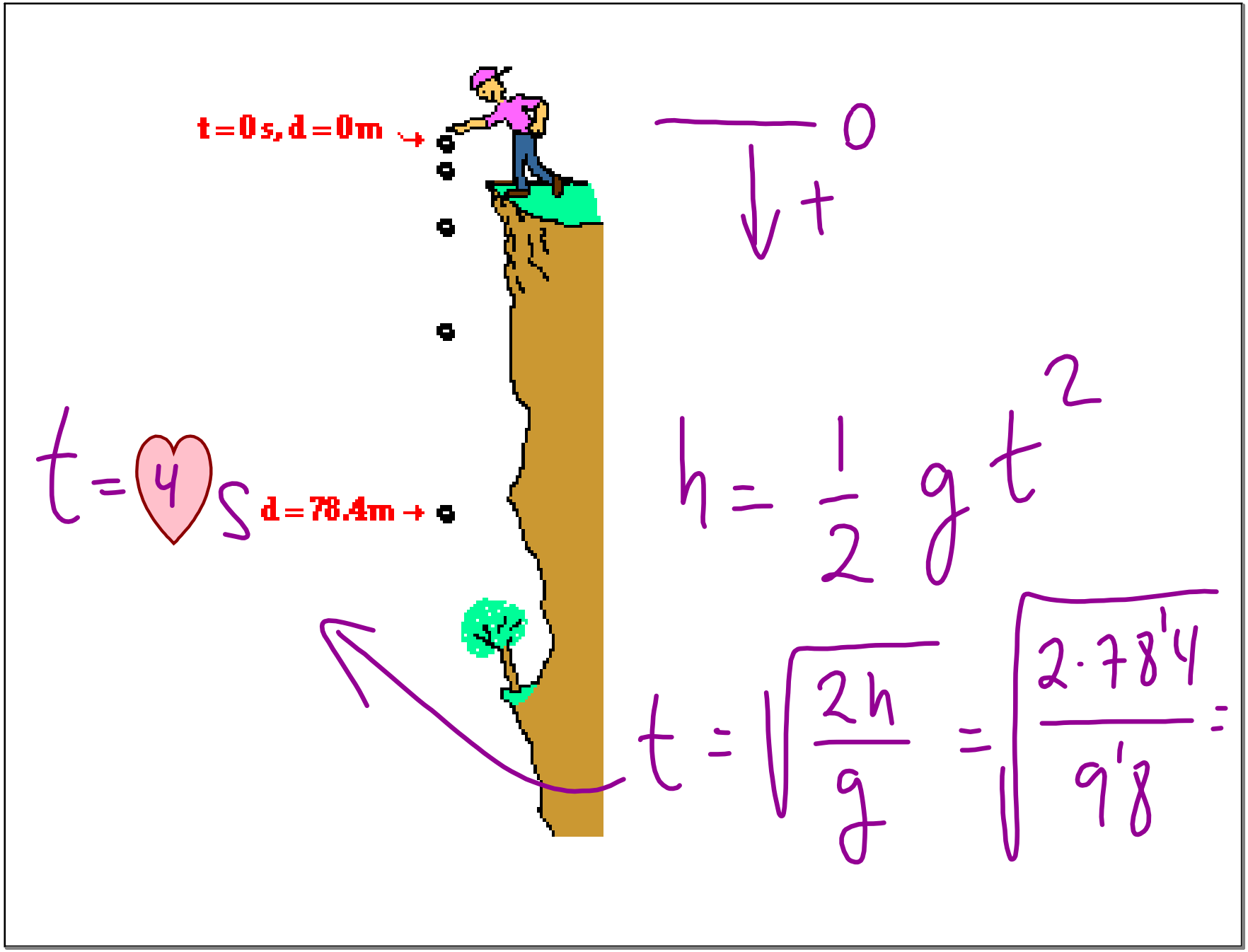

t = 0 s, d = 0 m
d = 78.4 m
t =


t = 0 s, d = 0 m
d = 78.4 m
t =
v = 0
g


t = 0 s, d = 0 m
d = 78.4 m
t =
0
+
h = 1/2 g t²
y = 1/2 g t²


t = 0 s, d = 0 m
d = 78.4 m
0
+
t =
h = 1/2 g t²
t = √(2h/g) =

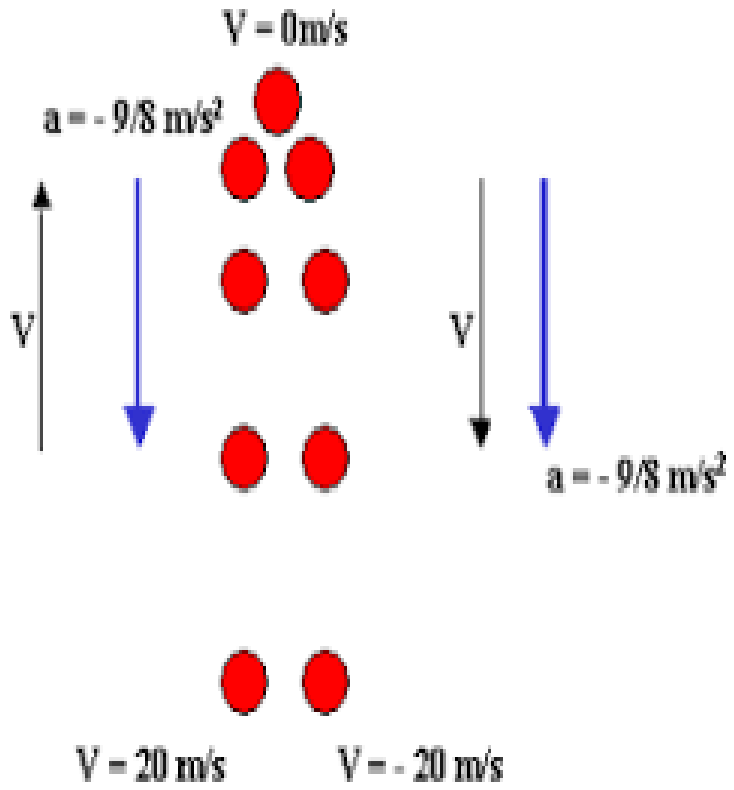

t = 0 s, d = 0 m
d = 78.4 m
t =
0
+
h = 1/2 g t²
t = √(2h/g) = √(2·78'4/9'8) =


t = 0 s, d = 0 m
d = 78.4 m
0
+
t = 4 s
$h = \frac{1}{2} g t^2$
$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \cdot 78'4}{9'8}} =$

EJEMPLO

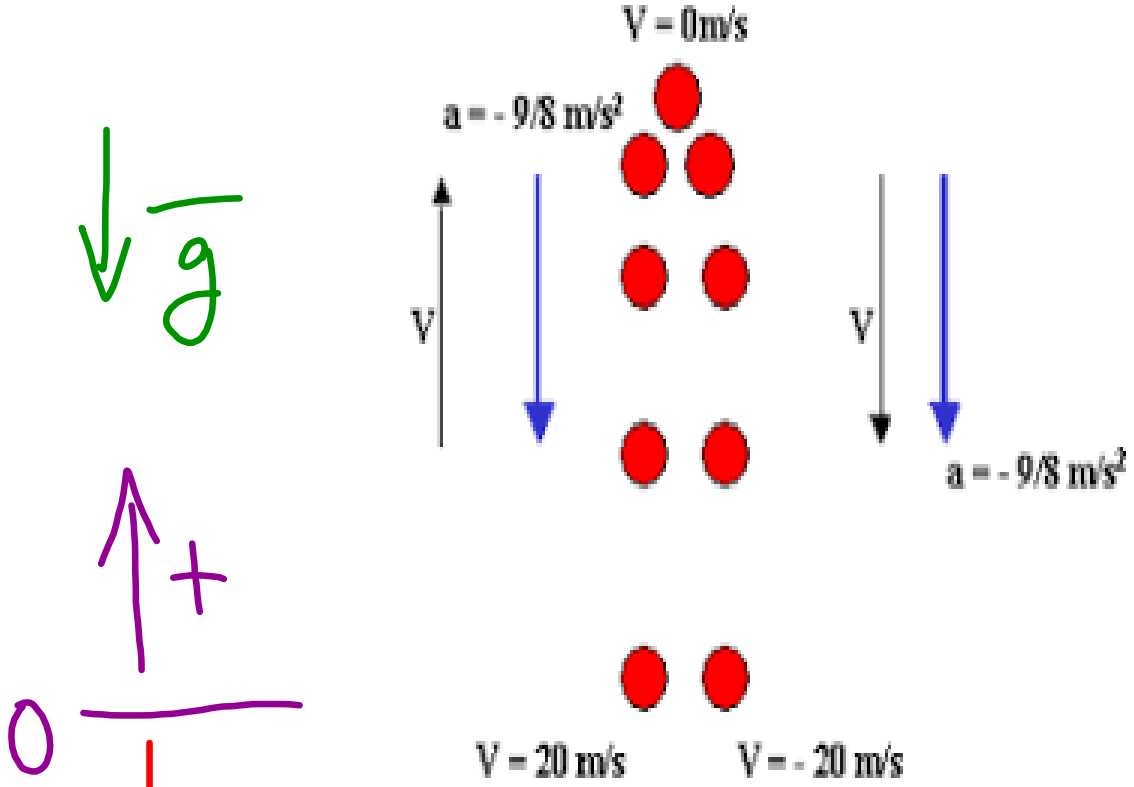
1

¿Cuánto tarda en subir y bajar?



t =

¿Cuánto tarda en subir y bajar?



$\vec{g}$

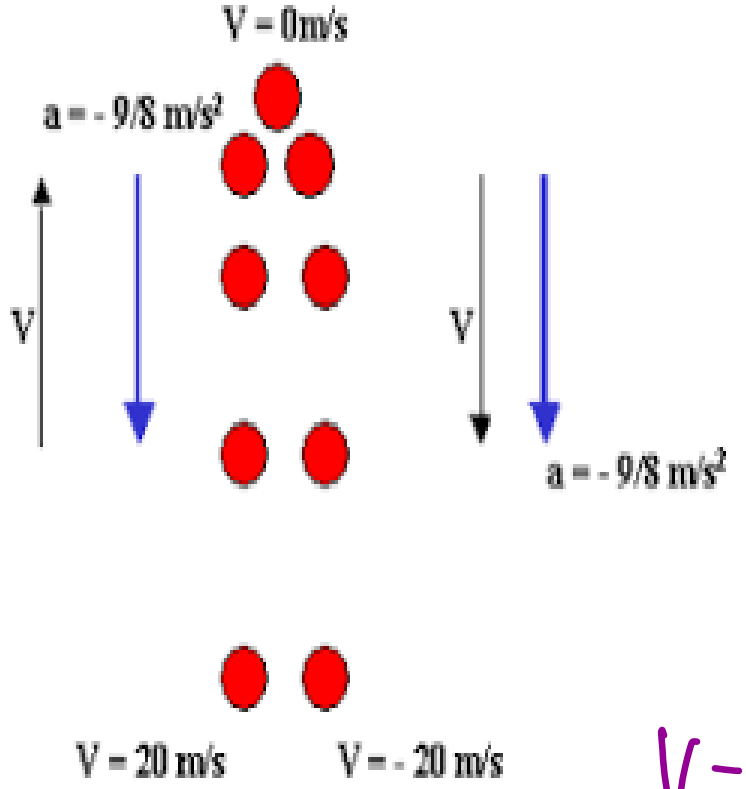
+

0

−

t =

¿Cuánto tarda en subir y bajar?

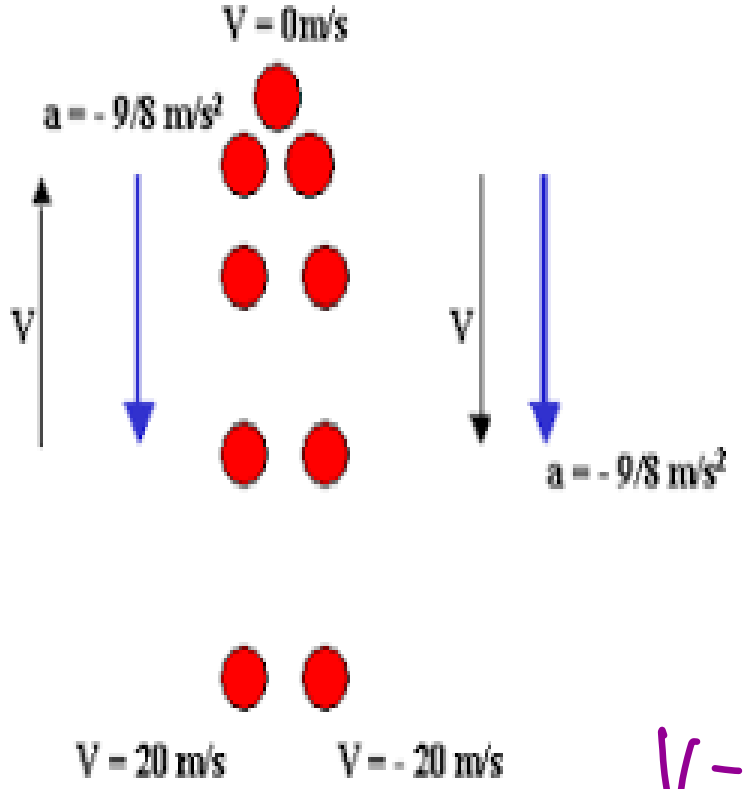


t = ♥

0 ↑ + ——— ↓ −

$V = V_0 - g\,t$

¿Cuánto tarda en subir y bajar?



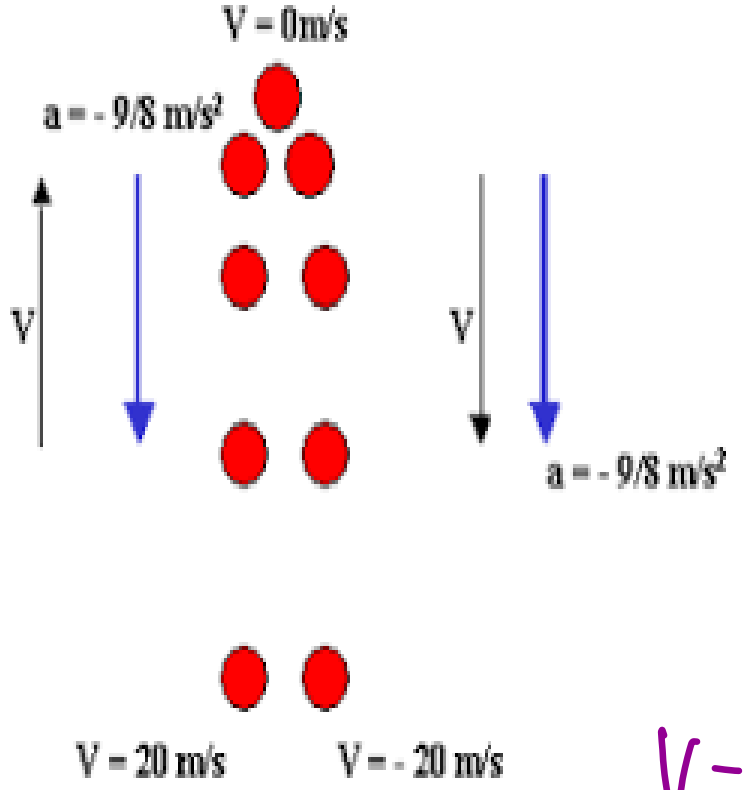
t = ♥

0 ↑ + ——— ↓ −

$V = V_0 - g\,t$

$t = \frac{V - V_0}{-g}$

¿Cuánto tarda en subir y bajar?



t = ♥

0 ↑ +

↓ −

$V = V_0 - g\,t$

$t = \frac{V - V_0}{-g} \rightarrow t = \frac{0 - 20}{-9'8}$

$$t = \frac{-20}{-9'8} = 2'04\ s$$

↓

tiempo =

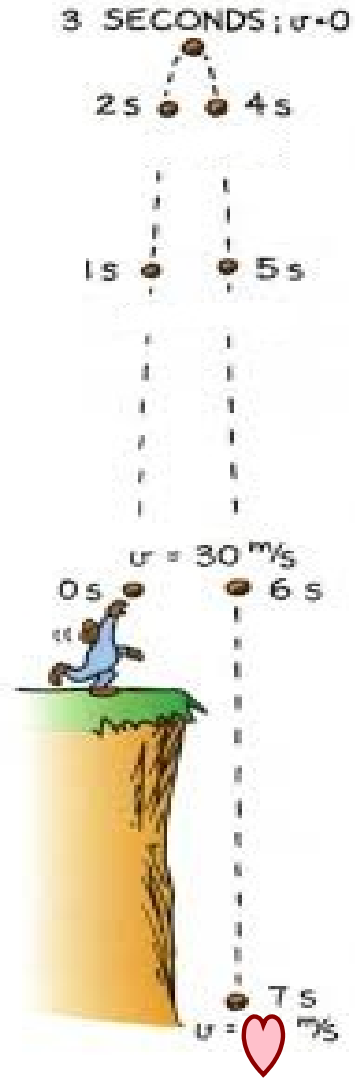
$$t = \frac{-20}{-9'8} = 2'04\ s$$

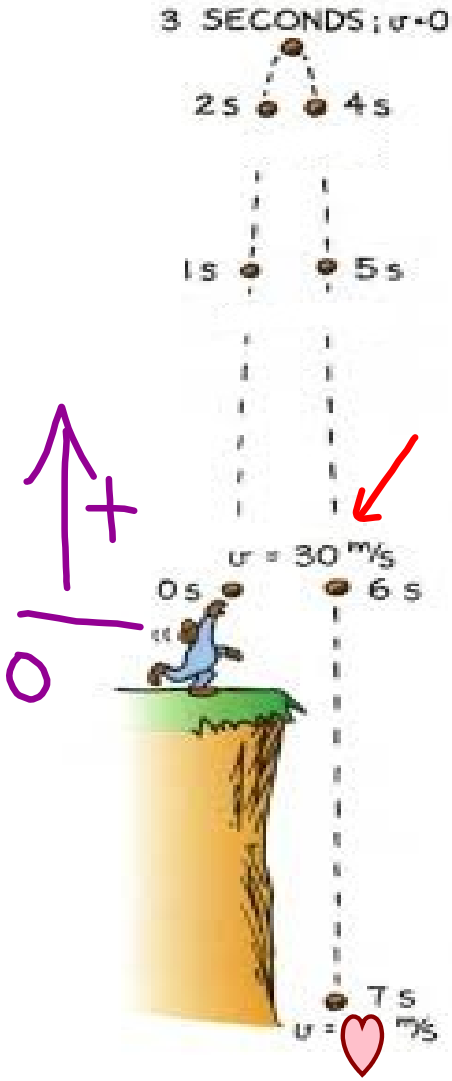
$$\downarrow$$

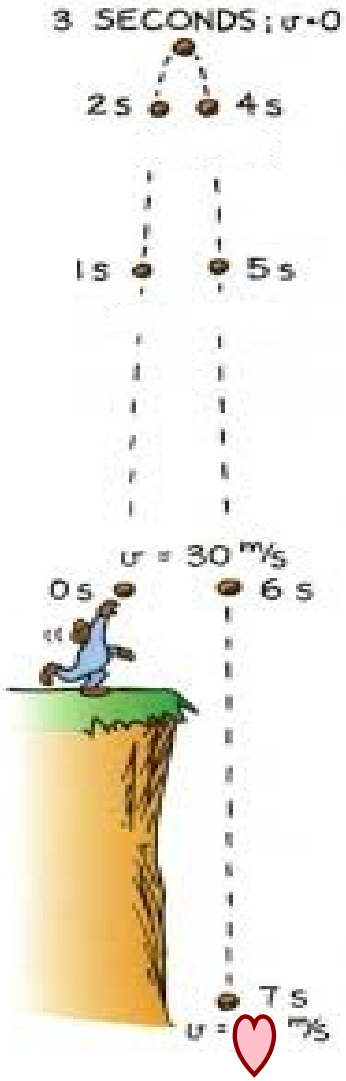
$$tiempo = 4'08\ s$$

EJEMPLO

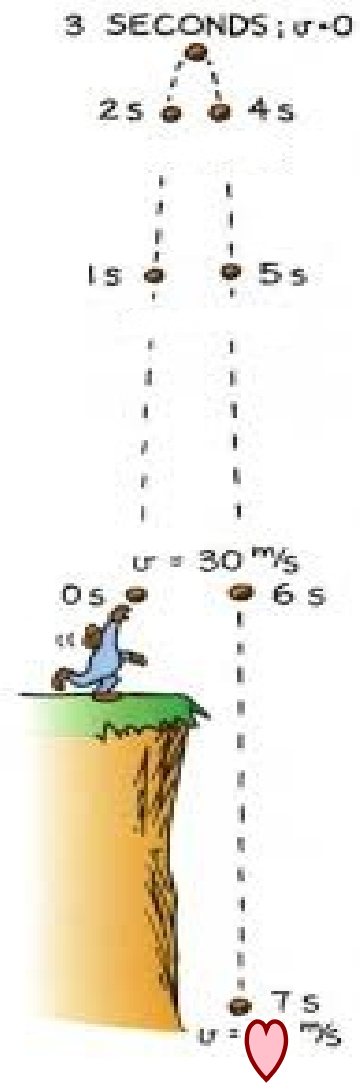
1


3 SECONDS; v=0
2 s
4 s
1 s
5 s
v = 30 m/s
0 s
6 s
7 s
v =
m/s


3 SECONDS; v=0
2 s
4 s
1 s
5 s
v = 30 m/s
0 s
6 s
7 s
v =
m/s
+
0



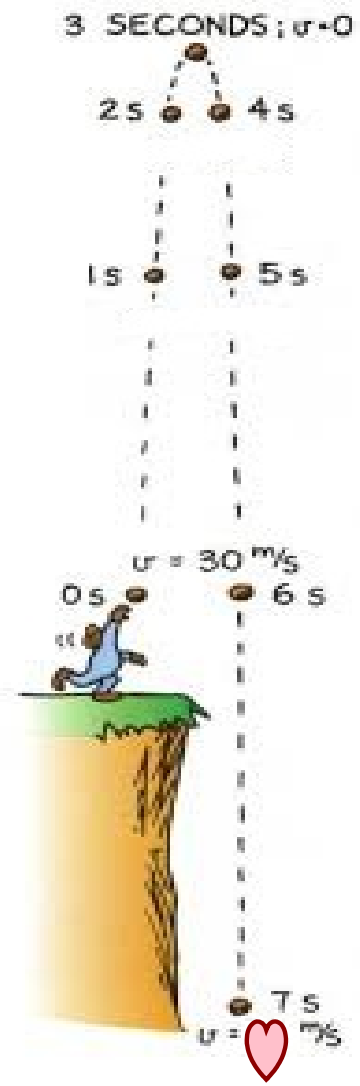
$$v = v_0 - g\,t$$



$$V = V_0 - g\,t$$

$$V = 30 - 9'8 \cdot 7$$

$$V =$$ ♥



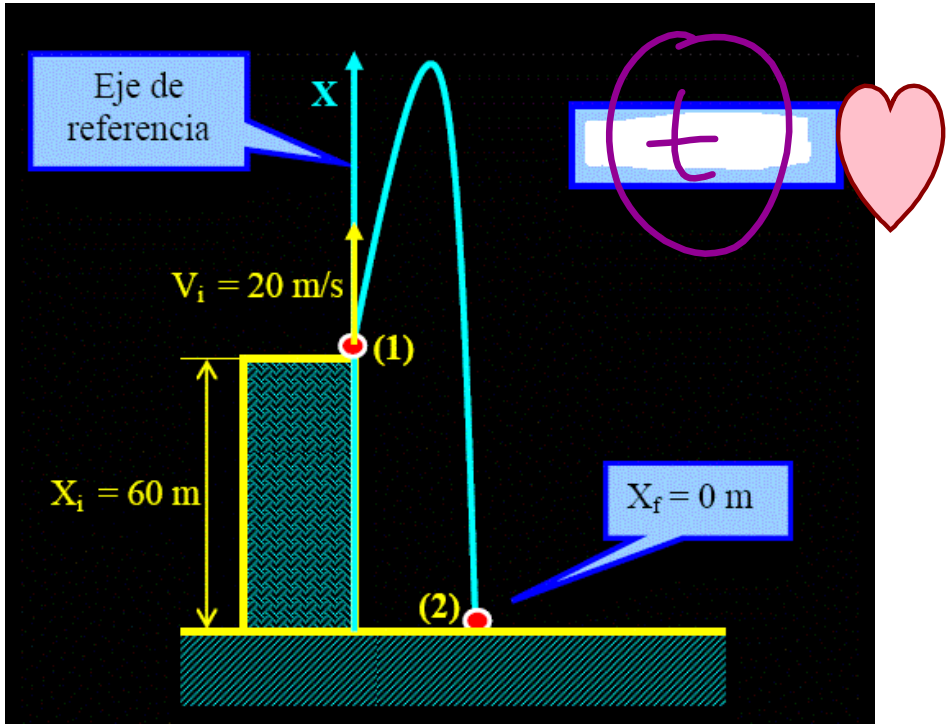
$$V = V_0 - g\,t$$

$$V = 30 - 9'8 \cdot 7$$

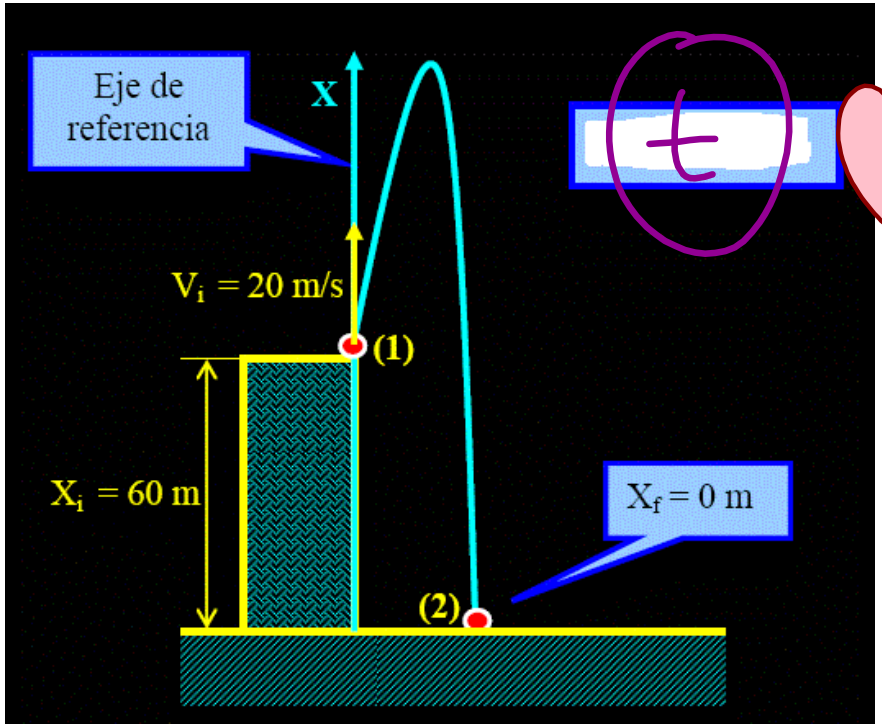
$$V = -38'6\ \frac{m}{s}$$

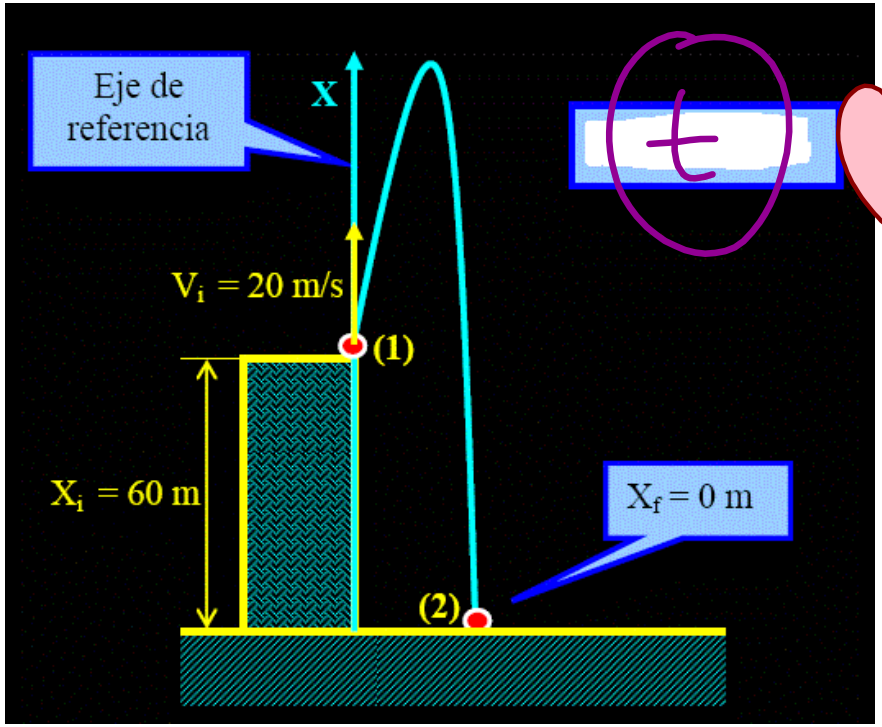
EJEMPLO

1

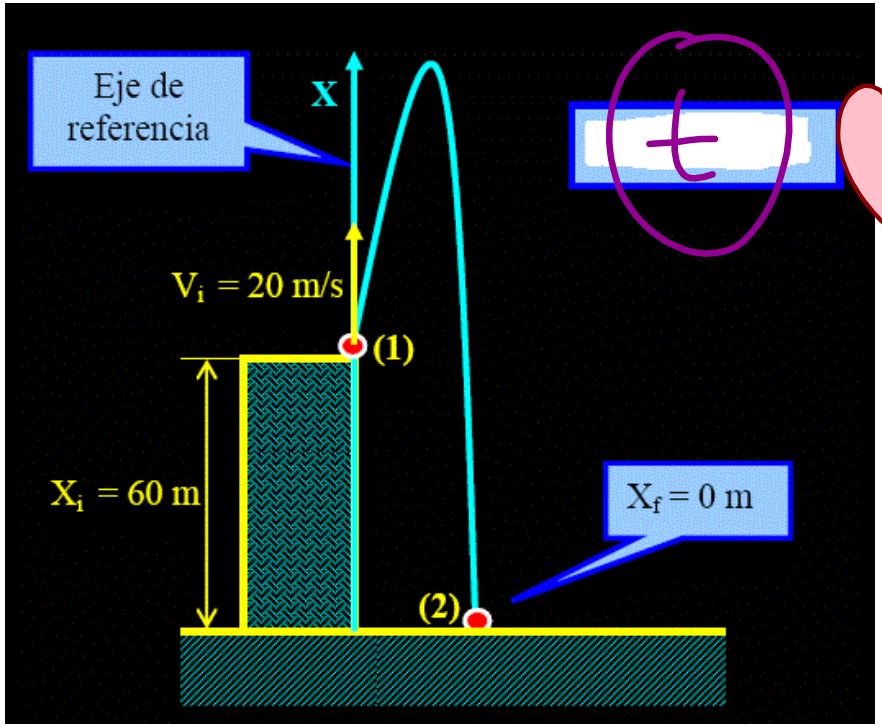


Lanzamiento vertical hacia arriba ↑


Eje de referencia
x
$V_i = 20$ m/s
(1)
$X_i = 60$ m
$X_f = 0$ m
(2)



$$y = y_0 + V_0 t - \frac{1}{2} g t^2$$



t

$$y = y_0 + v_0 t - \frac{1}{2} g t^2$$

$$0 = 60 + 20t - \frac{1}{2} 10 t^2$$

$$0 = 60 + 20t - 5t^2$$

$$5t^2 - 20t - 60 = 0$$

$$t = \begin{cases} \heartsuit \\ \heartsuit \end{cases}$$

$$0 = 60 + 20t - 5t^2$$

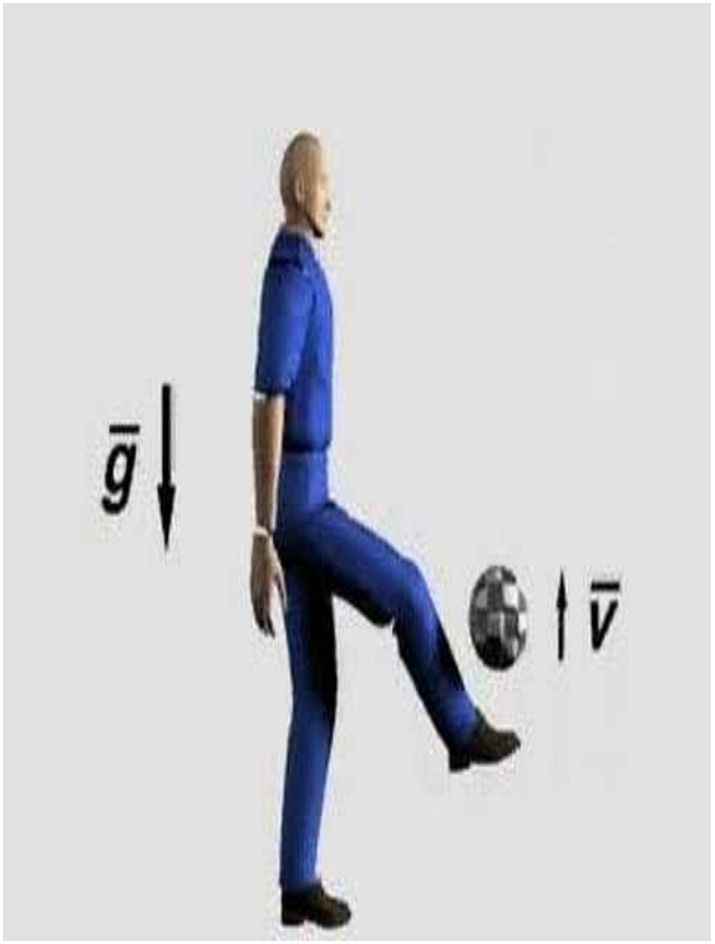
$$5t^2 - 20t - 60 = 0$$

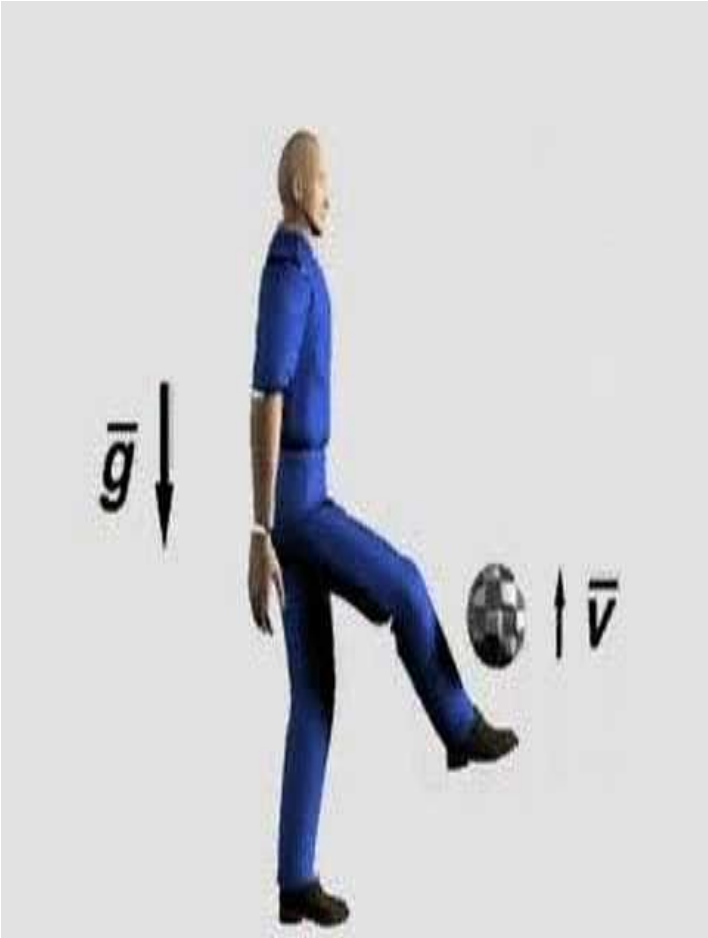
$t =$ → $-2\ s$ (NO)

→ $6\ s$

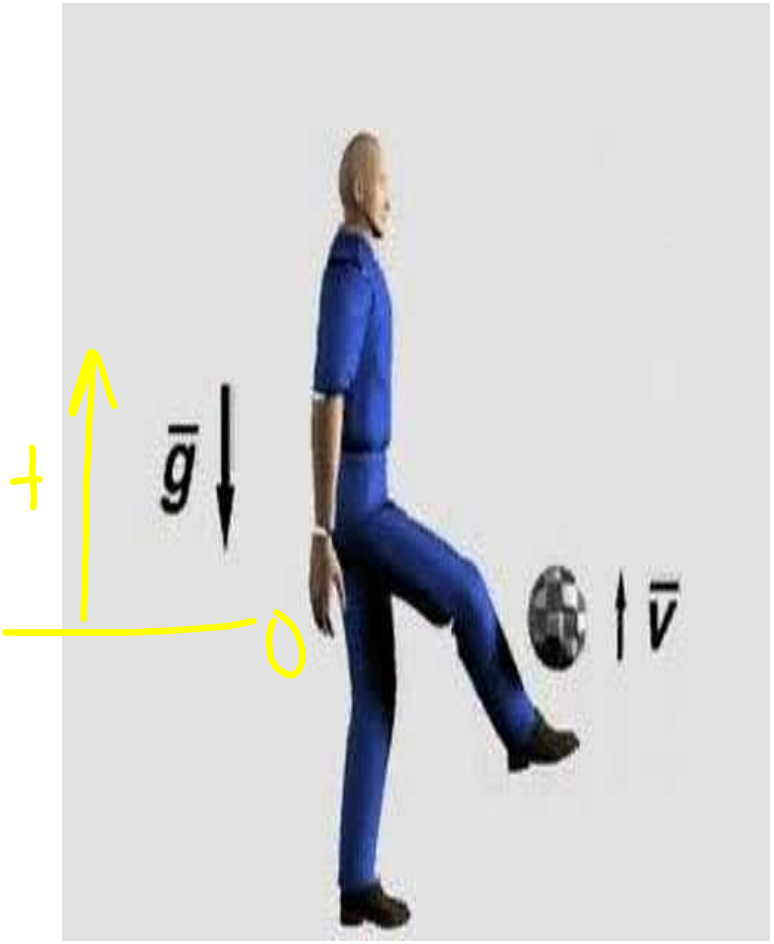
EJEMPLO

1

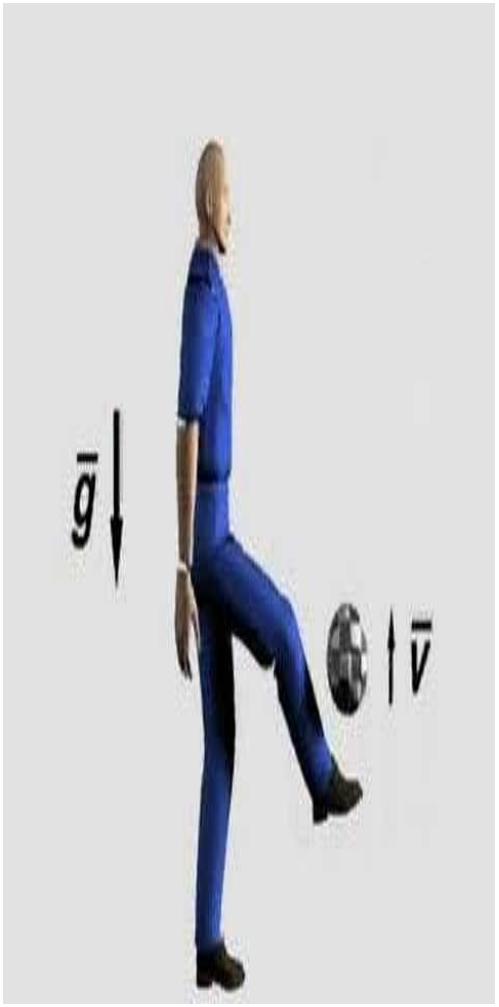

$\bar{g}$
$\bar{v}$



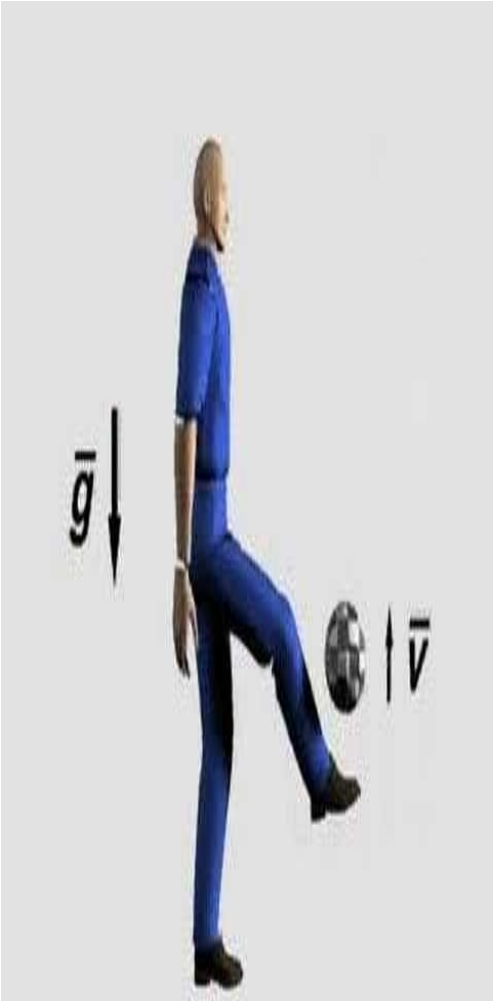
¿Cuál es la velocidad de salida si el tiempo en subir y bajar es 10 s?



¿Cuál es la velocidad de salida si el tiempo en subir y bajar es de 10 s?

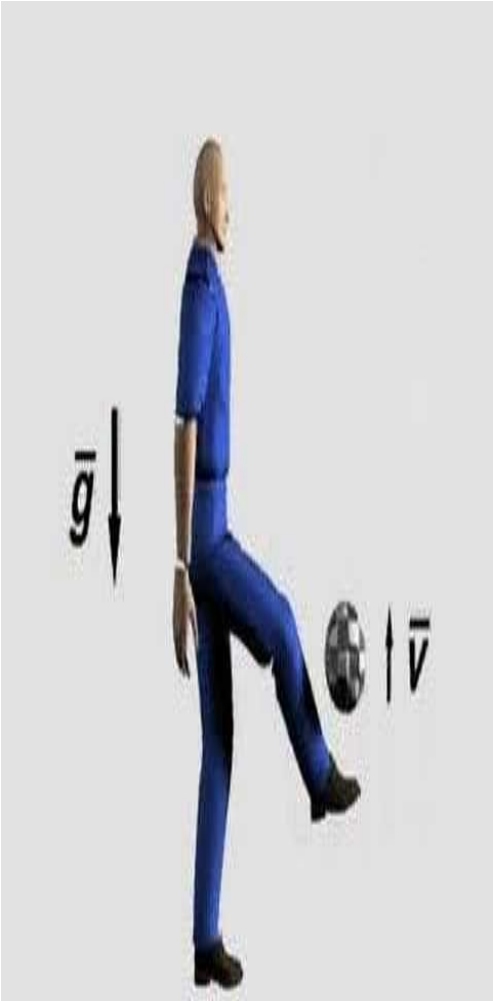


$$v = v_0 - gt$$



$$v = v_0 - gt$$

$$v_0 = v + gt$$

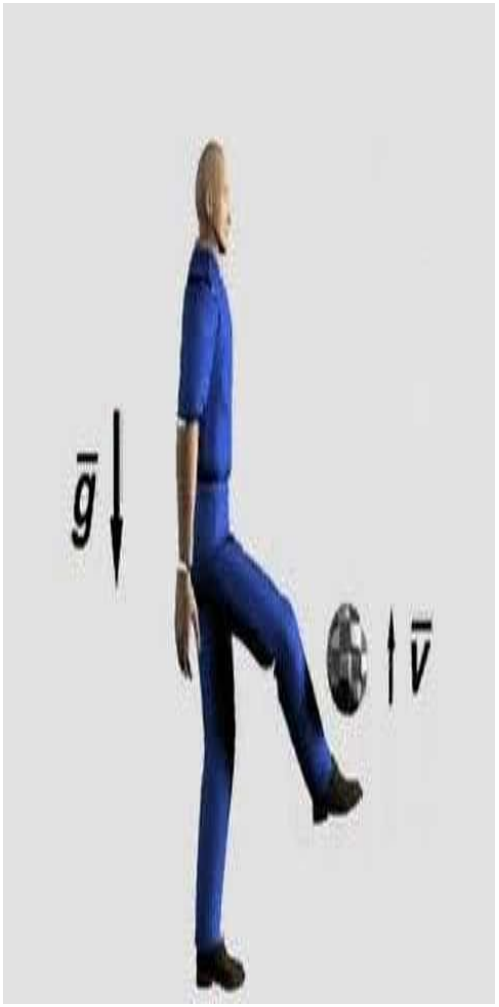


$$v = v_0 - gt$$

$$v_0 = v + gt$$

$$v_0 = 0 + 9'8 \cdot 5$$

$$v_0 =$$



$$V = V_0 - gt$$

$$V_0 = V + gt$$

$$V_0 = 0 + 9'8 \cdot 5$$

$$V_0 = 49 \text{ m/s}$$