Student Life Disability Services
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9.)

y	x_i	x_f
$V_0 = 0 m/s$	$V_0 =$	$V_0 = ?$
$V_f = ?$	$V_f =$	$V_f = ?$
$\Delta y = ?$	$d = 1.93m$	$d = 2.2m$
$a = 10 m/s^2$	$a = 0 m/s^2$	$a = 0$
$t = ?$	$t = ?$	$t = ?$

$\frac{1}{2}kx^2 = \frac{1}{2}mv^2$ $\quad PE = kE$ $\quad F = ma$

$\frac{1}{2}kx^2 = U_s$ $\quad U_g = mgh$ $\quad d = vt$

$\frac{d}{t} = v$

$mgh = \frac{1}{2}mv^2$

$h = \frac{v^2}{2g}$ $\quad h = \frac{(d/t)^2}{2g}$ $\quad h = \frac{d^2}{t^2 2g}$

$d = V_0 t + \frac{1}{2}at^2$ $\quad V_f^2 = V_0^2 + 2ad$

$d - V_0 t = \frac{1}{2}at^2$ $\quad V_f^2 = V_0^2 + 0$

$\frac{d - V_0}{t} = \frac{1}{2}a$

$d - V_0 = \frac{1}{2}at$ $\quad \frac{1}{2}kx^2 = \frac{1}{2}m\left(\frac{d}{t}\right)^2$

$\frac{2(d - V_0)}{a} = t$

Bobby must compress spring by 1.47cm