$\frac{1}{2}Mv_i^2 = \frac{3}{2}mv_f^2$

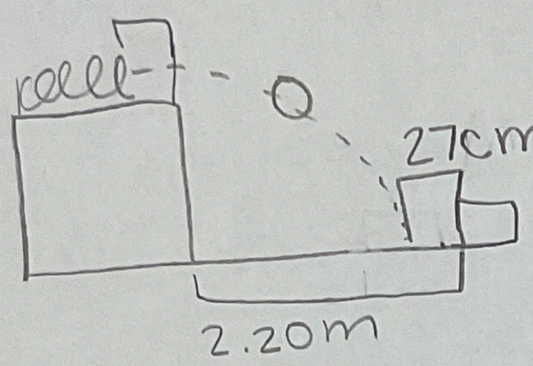
$\sqrt{\frac{2 \cdot 12.5}{3}} = 2.886$

Abby Spangenberg

Question 9

$x = 1.1\text{cm} \rightarrow \frac{1.1\text{cm}}{1} \cdot \frac{1\text{m}}{100\text{cm}}$

$0.011\text{m}$




$27\text{cm} \rightarrow \frac{27\text{cm}}{1} \cdot \frac{1\text{m}}{100\text{cm}}$

$0.27\text{m}$

When $x = 0.011$

$d = 1.93$

$PE = \frac{1}{2}kx^2$

$E_{int} = E_{Final}$

$PE_{spring} + PE = KE$

$\frac{0.011}{1.93} = \frac{x}{2.20}$

$\frac{0.0242}{1.93} = \frac{1.93x}{1.93}$

| | x | y |
|---|---|---|
| $d_i$ | 0 | 0 |
| $a_k$ | 1.93 | |
| $v_i$ | ? | 0 |
| $v_k$ | 0 | ? |
| a | 0 | -9.8 |
| t | ? | |

$PE = \frac{1}{2}kx^2$

$PE = mgh$

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

$\Delta x = v_i t + \frac{1}{2}at^2$

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

$\rightarrow 0 = 0 + 2a \cdot 1.93$

don't have mass or height or K

$x = 0.0125\text{m}$ or $1.25\text{cm}$

$x(t) = A\cos(\omega t + \phi)$

$v(t) = -A\omega\sin(\omega t + \phi)$