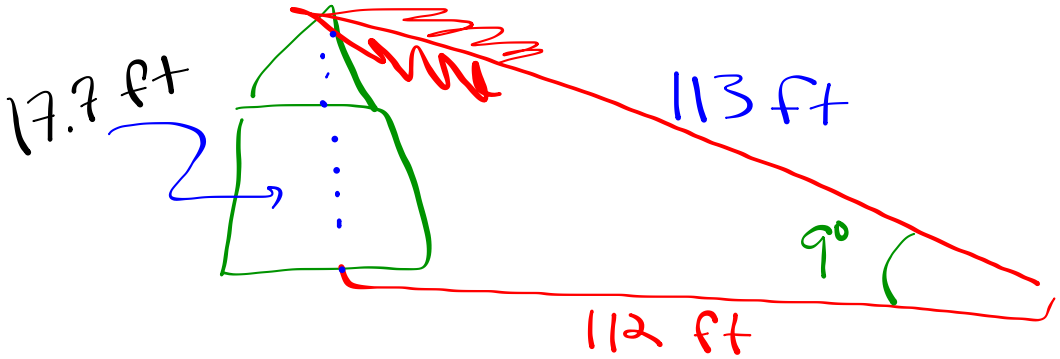
1. Check website for h/w readings
2. Quiz: Interpreting motion graphs
3. Today: H/W over 1D motion
   H/W over math practice
4. Monday/Tuesday: Motion match lab report
   H/W over motion graphs

15. To let in more sunlight, Tim Burr decides to cut down a tree near his house. Unfortunately, when he cuts his tree down, the top of the tree lands on his house. If the tree was located 112 feet away from his house, and the tree, as it rests on his house, now makes an angle of 9.00° with the ground,

a) How tall was the tree? [113 ft]

b) How tall is his house (now that the tree has landed on it)? [17.7 ft]

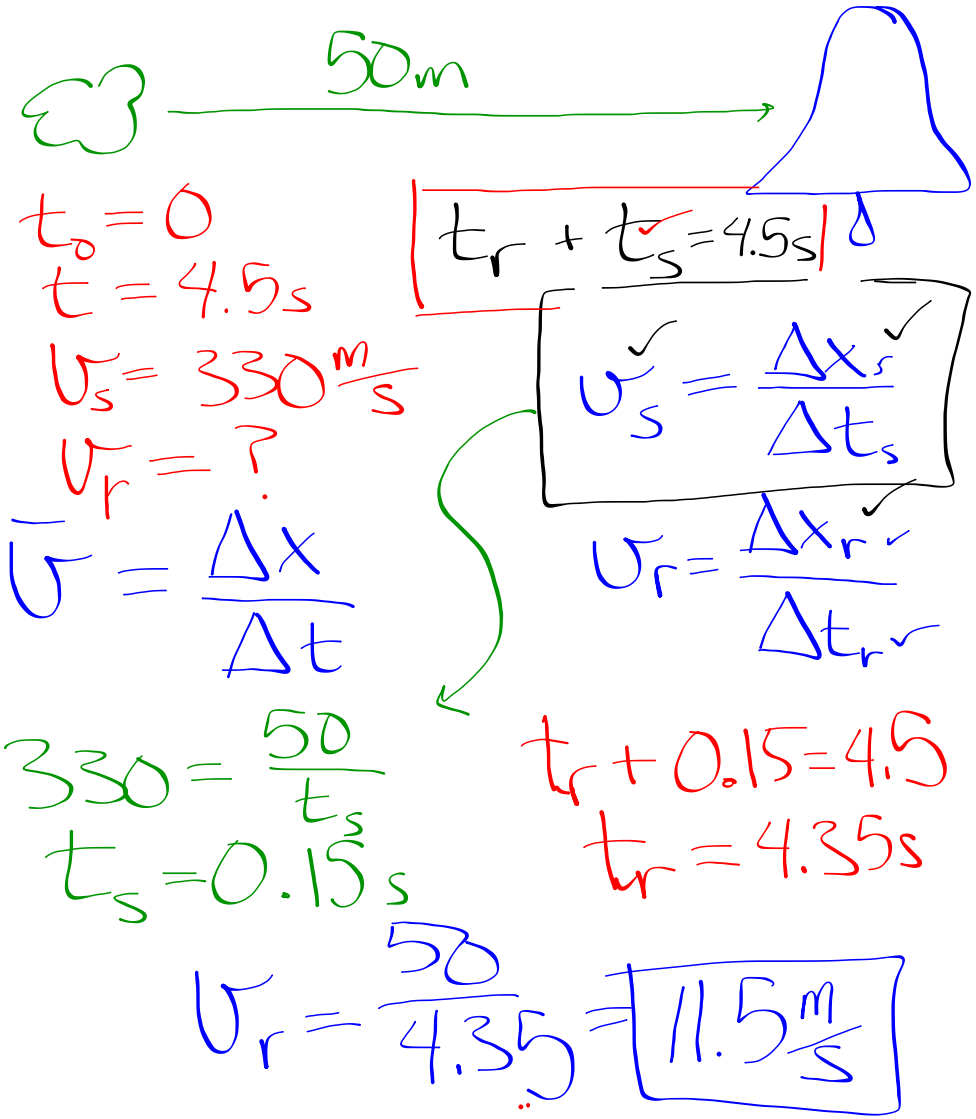


$$\sin\theta = \frac{o}{h}$$

$$h \sin\theta = o$$

$$113 \sin 9 = 17.7 \text{ ft}$$

8. A rock thrown horizontally at a large bell 50 m away is heard to hit the bell 4.5 s later. If the speed of sound is 330 m/s, what was the speed of the rock? (Disregard the effect of gravity – in other words, ignore any vertical deflection of the rock).



13. At high speeds, a particular automobile is capable of an acceleration of about 0.50 m/s^2. At this rate, how long does it take to accelerate from 90 km/h to 100 km/h?

$a = 0.50 \frac{m}{s^2}$

$\Delta v \begin{cases} v_1 = 90 \frac{km}{hr} \\ v_2 = 100 \frac{km}{hr} \end{cases}$

$10 \frac{km}{hr} \cdot \frac{1000 m}{km} \cdot \frac{hr}{3600 s} = 2.7 \frac{m}{s}$

$\Delta t \{ t = ?$

$\bar{a} = \frac{\Delta v}{\Delta t}$

$0.5 \frac{m}{s^2} = \frac{2.7 \frac{m}{s}}{t}$

$t = 5.4 s$

$\frac{t \cdot 0.5 \frac{m}{s^2}}{0.5 \frac{m}{s^2}} = \frac{2.7 \frac{m}{s}}{t} \cdot t \cdot \frac{1}{0.5 m/s^2}$

$t = \frac{2.7 \frac{m}{s}}{0.5 \frac{m}{s^2}} = \frac{2.7 m}{s} \cdot \frac{1 s^2}{0.5 m} = 5.4 s$