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?

$0.5\ m/s^2 \cdot \frac{3600\ s}{hr} \cdot \frac{3600\ s}{hr}$

$90\ \frac{km}{hr} \cdot \frac{1000\ m}{1\ km} \cdot \frac{1\ hr}{3600\ s} = v_0$

$100\ \frac{km}{hr} \cdot \text{"} \cdot \text{"} = v$

$\bar{a} = \frac{\Delta v}{\Delta t} = \frac{v - v_0}{\Delta t} = 0.50\ m/s^2$

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).

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

$330 \neq \frac{50}{4.5}$

$v_r = \frac{d_r}{t_r}$

$v_r = \frac{50}{4.35}$

$v_r = 11.5\ m/s$

$v_s = \frac{d_s}{t_s}$

$330 = \frac{50}{t_s}$

$t_s = 0.15\ s$

$t = t_r + t_s$

$4.5 = t_r + 0.15$

$t_r = 4.35\ s$

Quizzes

Homework quizzes:

- Cover a reviewed homework set
  - → Make sure you have correctly solved all h/w problems in your notes
  - OPEN HOMEWORK
  - Unannounced

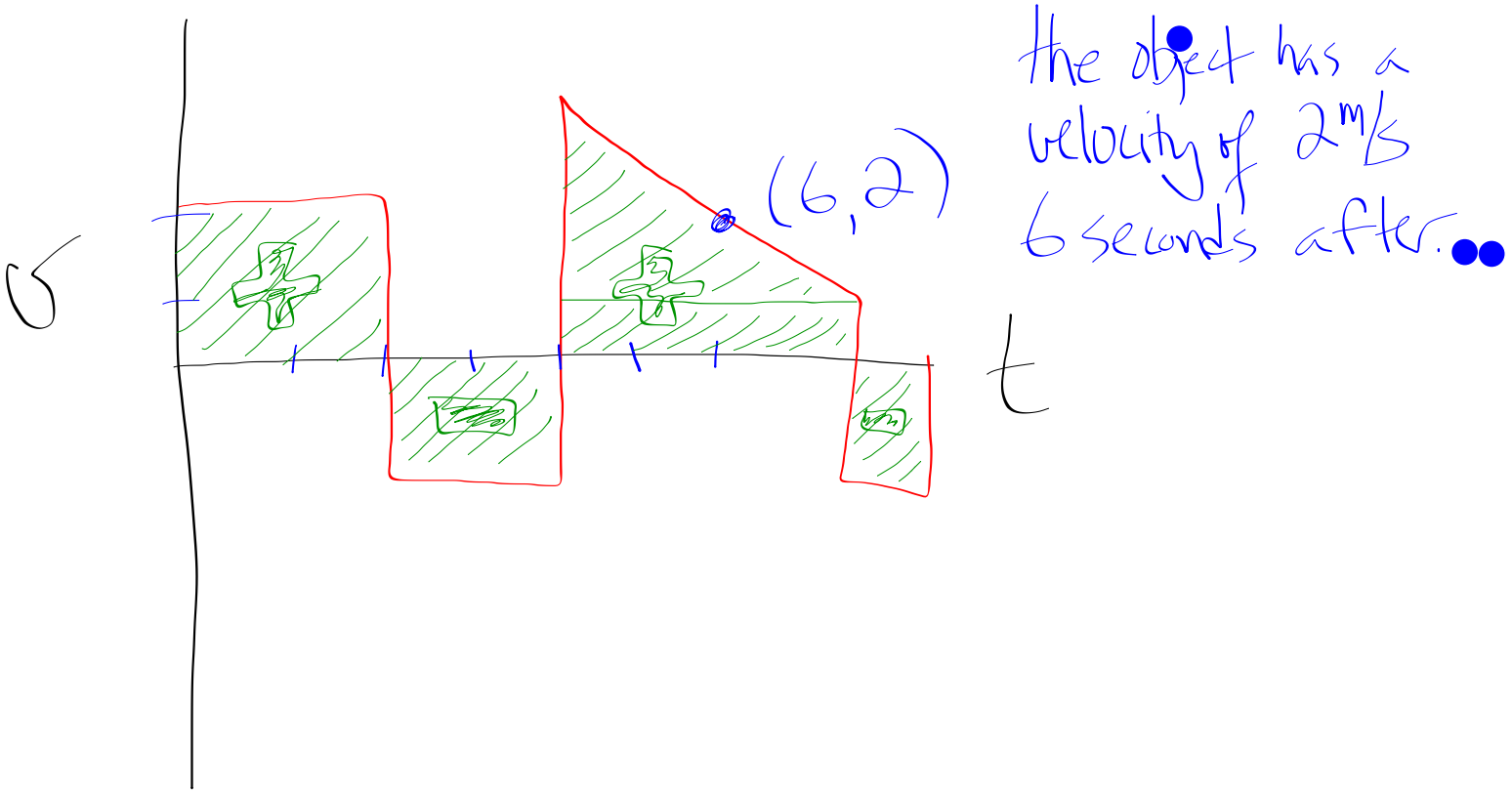
Real quizzes:

- Over anything
  - Closed-note
- Announced (~2 days in advance)
  - Includes formulas, constants

Quiz next Tuesday (9/27)

Over motion graphs:

- Convert x-, v-, and a-vs-t graphs
- Understand +/- values, slopes, zeroes
- Coordinates & area between the curve and the horizontal axis on a v-vs-t graph?



the object has a velocity of 2 m/s 6 seconds after.