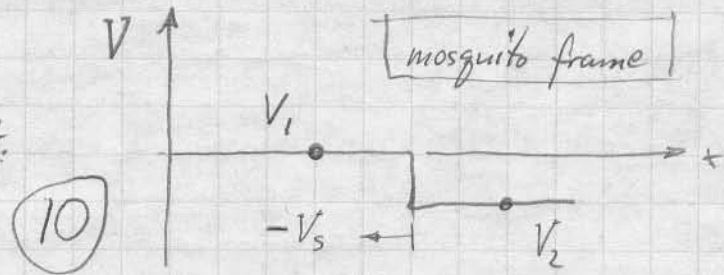
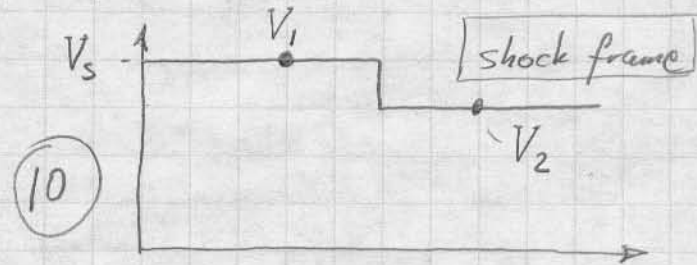


- a) In mosquito frame  $V_1 = 0$   
 Velocities defined positive to right.

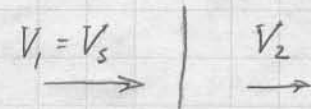


(10)

- b) To get into shock frame, add  $V_s$  to all velocities



(10)



c)  $M_1 = \frac{V_1}{a_1} = \frac{420 \text{ m/s}}{350 \text{ m/s}} = 1.20$

from shock table, for  $M_1 = 1.2$ :

$\frac{P_2}{P_1} = 1.513 = \frac{P_f}{P_i}$ , so  $P_f = 1.513 \cdot P_i = 151300 \text{ Pa}$  (15)

$\frac{a_2}{a_1} = \sqrt{\frac{T_2}{T_1}} = \sqrt{1.128} = 1.0621$ , so  $a_f = 1.0621 \cdot a_i = 371.7 \text{ m/s}$  (15)

*[Faint handwritten notes and calculations are visible in the background, including M1 = 1.2, a2/a1 = 0.842, and V2 = 371.7 m/s.]*