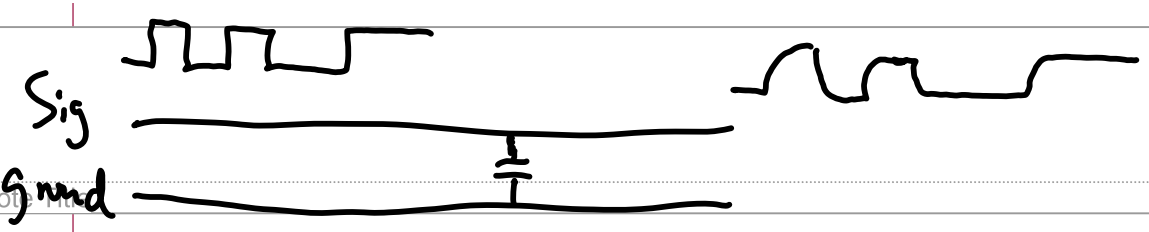
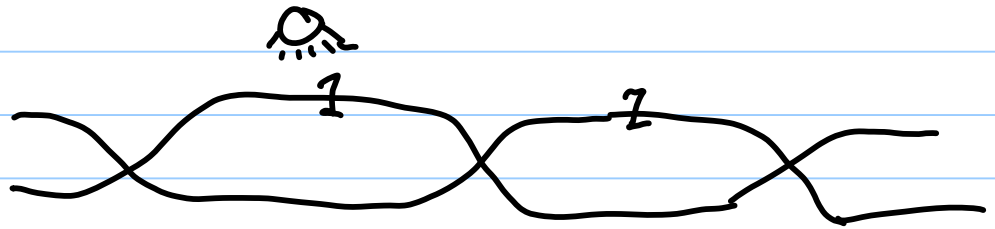
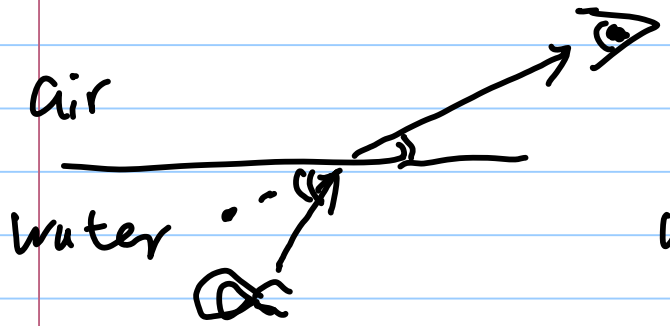
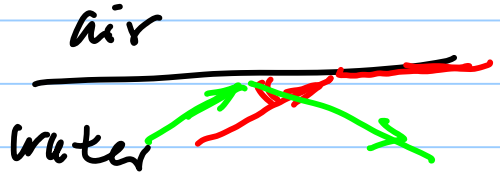
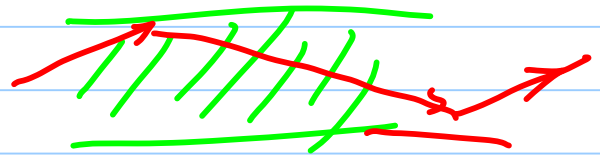


Note Title 8/28/2012









$$T = 500\text{ ms} + \frac{640{,}000\text{ bit}}{1.536\text{ Mbp}/24}$$

$$= 0.5\text{ s} + \frac{24 \times 640{,}000\text{ bit}}{1.536 \times 10^6\text{ bit/s}}$$

$$= 0.5\text{ s} + 10\text{ s} = 10.5\text{ seconds}$$

- 1 Mb/s link
- each user:
  - 100 kb/s when "active"
  - active 10% of time

$N = 35 \qquad p = 0.1$

r.v. n: # of users that are active

$$p(n=0) = (1-p)^{35}, \quad p(n=1) = \binom{35}{1} \cdot p \cdot (1-p)^{34}$$

$$p(n=k) = \binom{35}{k} \cdot p^k \cdot (1-p)^{35-k}$$

$$p(\text{congested}) = p(>10 \text{ users active}) = p(n=11) + p(n=12) + \cdots p(n=35)$$

$$\approx 0.0004$$