

## Nuclear Engineering 150 – Discussion Section

### Notes

### Rate Independence of Absorption in $1/v$ -absorbers

The rate of absorption in a  $1/v$ -absorber with microscopic absorption cross section  $\sigma_a$  is independent of the energy of the neutrons involved in the reaction. This should make some intuitive sense. Neutrons with greater energies are traveling faster and so will tend to collide in less time, but will also have lower cross sections and so will be less likely to collide and be absorbed.

$$R = \int_0^{\infty} \Sigma_a(E) \phi(E) dE$$