# Problem 1

*a.)*

**False**. For reactors we usually use the $k$-eigenvalue because reactors above or below criticality would have alpha eigenvalues oscillating above and below zero, leading to instabilities.

*b.)*

*c.)*

*d.)*

*e.)*

*f.)*

# Problem 2

# Problem 3

*a.)*

*b.)*

# Problem 4

# Problem 5

# Problem 6

# Problem 7

*a.)*

*b.)*

*c.)*

*d.)*

*e.)*