1. In order to sustain the neutron chain reaction, the neutrons must be thermalized. This takes time. Some degree of thermalization is needed even in a fast breeder reactor. The required time, while brief on a human scale, is so long that the energy needed by a weapon could not be generated.

2. \[ \text{Counts} = \frac{S_0}{1 - K} = \frac{100}{1 - .75} = 400 \text{ cpm} \]

3. The reactor will achieve criticality if the blades are withdrawn by another four inches. To see this, make a '1/M' plot.

4. 7.0 inches

5. \[ P = P_0 e^{t/\tau} \]
\[ \ln \left( \frac{100}{50} \right) = t / 200 \]
\[ t = 138 \text{ s} \]

6. PuBe sources are doubly encapsulated in stainless steel and will melt if power exceeds a few hundred Watts.

7. Criticality is approached slowly in order to allow time for subcritical multiplication to occur.