

# Number of half lives

If you begin with 25 mg of iodine-131,  
what mass remains after three weeks?  
( $\tau_{1/2} = 8.05$  days for iodine-131)

# Number of half lives

If you begin with 25 mg of iodine-131,  
what mass remains after three weeks?  
( $\tau_{1/2} = 8.05$  days for iodine-131)

Step 1. Determine the number of half lives  
 $n = (21 \text{ days}) / (8.05 \text{ days}) = 2.6$  half lives

Step 2. Calculate fraction remaining  
fraction =  $(1/2)^n = (1/2)^{2.6} = 0.164$

Step 3. Calculate mass  
mass remaining =  $(0.164)(0.025 \text{ g})$   
 $= 0.0041 \text{ g}$