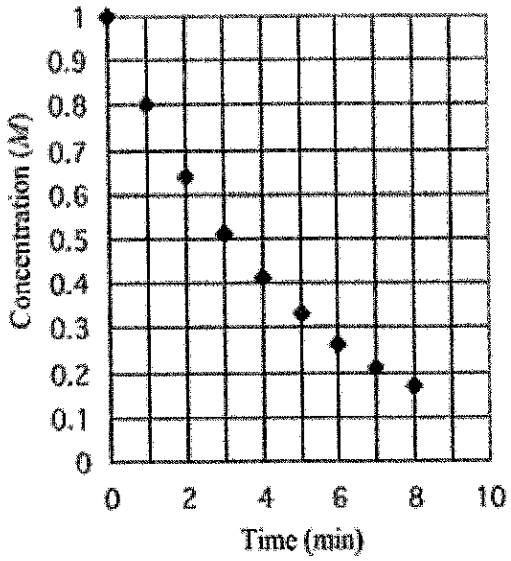
Half-Life Multiple-Choice Practice

1. Which reaction order is *not* the reaction order of this reaction? ← [A] vs. time is not linear!

   (a.) 0th order c. 2nd order
   b. 1st order d. 3rd order

2. What is the half-life of the element shown?

   a. 2.05 minutes c. 4.18 minutes
   (b.) 3.13 minutes d. 5.22 minutes



3. What is the molar concentration of this element after a second half-life has elapsed?

   a. 0.75 M (c.) 0.25 M
   b. 0.50 M d. 0.13 M

4. At what time has 75% of the sample decayed?

   a. 4.17 minutes (c.) 6.08 minutes
   b. 5.33 minutes d. 7.51 minutes

5. The following data was collected at 25°C and 1 atmosphere of pressure for the reaction shown below. Which of the following best represents the half-life for this reaction?

$$2N_2O_5(g) \rightarrow 4NO_2(g) + O_2(g)$$

Time (minutes)	$[N_2O_5]$ (mol/L)
0	1.24×10^{-2}
10.	0.92×10^{-2}
20.	0.68×10^{-2}
30.	0.50×10^{-2}
40.	0.37×10^{-2}
50.	0.28×10^{-2}
70.	0.15×10^{-2}

← 50% ≈ 0.62 E-2

   a. 15 minutes c. 36 minutes
   b. 18 minutes (d.) 23 minutes

6. After 44 minutes, a sample of ^{44}K is found to have decayed to 25% of the original amount present. What is the half-life of ^{44}K?

   2 $t_{1/2}$

   a. 11 minutes c. 44 minutes
   (b.) 22 minutes d. 66 minutes

100% 1 $t_{1/2}$ 50% 2 $t_{1/2}$ 25%