

**CHEM 3530**  
**Chapters 10**  
**Homework Answers**

10.1  $M^{-2}s^{-1}$

10.2  $k = 1.12 \times 10^{-4} s^{-1}$

10.3  $k = 1.09 \times 10^{-3} M^{-1}s^{-1}$

10.4  $t = 2.8 \times 10^{-4} s$

10.5  $T = 299 K$

10.6  $t_{1/2} = 5.4 \times 10^4 s$

10.7  $x = -1$ ,  $y = 5/2 = 2.5$ ,  $k = 0.15 M^{-1/2}s^{-1}$

10.8 (a)  $k = 3.70 \times 10^{-2} M^{-1}s^{-1}$

(b)  $[A] = 0.23 M$

(c)  $t = 135 s$

10.9 3500 yr

10.10 (a) Ratio = (iii) 4.90

(b) Age = (ii) 1.50 by

10.11  $x = 3/2 = 1.5$

10.12 (a)  $E_a = 93.0 kJ/mol$ ,  $A = 5.0 \times 10^{12} s^{-1}$

(b)  $k = 4.4 s^{-1}$

(c)  $T = 48 ^\circ C$

10.13  $E_a = 41.6 kJ/mol$ ,  $A = 1.8 \times 10^8 s^{-1}$