Student Name: _____ Date: _____

Chemistry 40S

Reaction Rate
Science Notebook KEY

Kinetics Assignment #1:

1a) Rate = 2.6g/min b) Rate = 2.0 g/min

2a) Rate = 2.19×10^{-5} mol/L·s b) Rate = 5.62×10^{-6} mol/L·s
c) Rate = 0.10 mol/L·s

3a) CO_2 Produced:
b) Rate = 0.248 g CO_2/min
c) (i) Rate = 0.450 g CO_2/min (ii) Rate = 0.077 g CO_2/min

4) 0.40 mol/L·s 0.10 mol/L·s

5a) 0.11 mol/L·s O_2 b) 0.135 mol/L·s H_2O c) 0.090 mol/L·s NO

Kinetics Assignment #2:

1a) EA = 75 kJ b) ΔH = 15 kJ c) endothermic

2a) EA = 150 kJ b) ΔH = -75 kJ c) exothermic
d) EA = 225 kJ

3a) EA = 10 kJ b) ΔH = -20 kJ c) exothermic
d) EA = 30 kJ

Kinetics Assignment #5:

1a) Rate = $k[A][B]^2$ b) Rate doubles
c) Rate is 9X greater d) Rate is 64X greater

2a) Rate = $k[A]^2[B]^3$ b) Rate is 16X greater.
c) Rate is 3.125X greater.

3a) Rate = $k(NO)^2$ b) k = 0.123 1/M·min
c) 1.23×10^{-5} M/min d) 4X greater rate
e) 1/9X as great a rate

Kinetics Assignment #5:

4a) Rate = $k[H_2][I_2]$ b) Rate remains unchanged.
c) k = 16 1/M·min d) 0.16 M/min

5a) Rate = $k[A]^2[C]$ b) 1/8X as great.
c) $k = 4.00\ 1/M^2 \cdot min$ d) 48.0 M/min

6a) Rate = $k[B]^2$ b) 1.33 M/min

7a) Rate = $k[A]^2[B]$ b) 12X greater.
c) $k = 1.58\ 1/M^2 \cdot s$ d) 19.1 M/s

8a) Rate = $k[A]^2$ b) k = 0.556 1/M·s
c) 13.9 M/s

9a) Rate = $k[A][B]^2$ b) 0.44X greater rate.
c) $k = 11.1\ 1/M^2 \cdot min$ d) 72.0 M/min

10a) Rate = $k[A][B]^2$ b) 27X greater!

Kinetics Assignment #6:

1a) Rate doubles b) 8X greater
c) Temp decreases so rate decreases

2. Rate = $k[CH_3COOH_3]$

Kinetics Assignment #7:

1a) Rate = k[B] b) k = 0.56 1/M·min

2a) Rate = k[B] b) k = 7.0 1/min