#### 1. ♥ STUDY CHECK

For the reaction below, the rate of appearance of C is 0.3M/s. Calculate: (a) The rate of disappearance of A and B. (b) The rate of appearance of D. (c) The rate of reaction.

$$5A + 2B \longrightarrow C + 2D$$

#### 2. ♥ STUDY CHECK

Given the following rate law. Calculate: (a) The rate constant giving the correct units. (b) The partial order of all species. (c) The total order of the reaction. (d) If [A] is doubled how would the reaction rate be affected?

$$r = 0.056[A]^4[B]^2[C]^2$$

## 3. ♥ STUDY CHECK

Given the following rate constants indicate the reaction order: (a) k=0.03 1/s (b) k=3 × 10<sup>-4</sup> L/smol (c) k=3 × 10<sup>-5</sup> 1/sM<sup>2</sup>

#### 4. ♥ STUDY CHECK

Identify the following rate law as differential or integral and switch into the other form for an initial concentration of 0.3M.

$$r = 5 \times 10^{-2}$$

## **5. ♥ STUDY CHECK**

Calculate the half-life for a first order reaction with initial concentration of  $5.99 \times 10^3$  mol/L if the rate constant is  $0.02 \ 1/s$ ?

## 6. ♥ STUDY CHECK

Use the data below to calculate the rate law of the following reaction:  $A \, \longrightarrow \, B$ 

Experiment	r (M/s)	[A], (M)
1	0.5	2.5
2	0.6	3.0

# 7. ♥ STUDY CHECK

Use the data below to calculate the rate law of the following reaction:  $A + B \longrightarrow C$ 

Experiment	[A] (M)	[B] (M)	r (M/s)
1	0.5	0.2	$2 \times 10^{-4}$
2	0.6	0.2	$2 \times 10^{-4}$
3	0.5	0.3	$4.5 \times 10^{-4}$
4	0.6	0.3	$4.5  imes 10^{-4}$