

Chapter 10

How far?

Print out and complete this worksheet to generate a summary for Chapter 10.

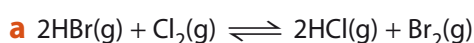
- 1** Explain what you understand by *dynamic equilibrium*.

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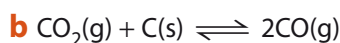
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- 2** Write the expression for K_c for each of the reactions **a** and **b**. In each case, give the units of the equilibrium constant.

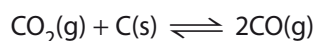


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- 3** Consider the reaction:



The forward reaction to produce carbon monoxide is endothermic.

- a** Explain what effect the following changes in conditions would have on the amount of carbon monoxide produced:

(i) increasing the pressure

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(ii) increasing the temperature

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b Explain what effect the changes in conditions in part **a** would have on the value of the equilibrium constant

(i) increasing the pressure

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(ii) increasing the temperature

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4 The equilibrium constant for a particular reaction decreases when the temperature is raised. State and explain whether the forward reaction is endothermic or exothermic.

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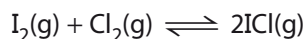
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5 Consider the reaction:



The equilibrium constant for this reaction has the numerical value 81. An equilibrium mixture was analysed and found to contain 0.10 mol of gaseous iodine and 0.10 mol of gaseous chlorine.

a What are the units of K_c ?

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b Calculate the amount (in moles) of $\text{ICl}(\text{g})$ present in the equilibrium mixture.

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- 6** At 1000°C, the following equilibrium can be established:



1.0 mol of carbon monoxide and 1.0 mol of hydrogen were mixed together in a 1.0 dm³ container and allowed to come to equilibrium at 1000°C. The equilibrium mixture was analysed and found to contain 0.24 mol of steam.

- a** Use the equation to state the amount (in moles) of methane, carbon monoxide and hydrogen present in the equilibrium mixture.

CH₄: mol

CO: mol

H₂: mol

- b** Calculate the equilibrium constant K_c for this reaction. Give its units.