Le Chatelier’s Principle – Reading Guide

*section 13.3 in OpenStax*

When a chemical system at equilibrium is disturbed, it\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Consider the following ways in which we can disturb a system at equilibrium.

**Change in concentration**

* Add reactant:
	+ Q \_\_\_\_\_\_ K (=, < or >)
	+ Which way will the reaction shift to establish equilibrium? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(left/right)*
* Remove product:
	+ Q \_\_\_\_\_\_ K (=, < or >)
	+ Which way will the reaction shift to establish equilibrium? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(left/right)*

**Change in partial pressure**

Decreasing the volume will shift toward the side with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ moles of gas.

**Change in temperature**

* Exothermic
	+ Decreasing the temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the value of K (*increases/decreases*)*.*
	+ Decreasing the temperature shifts the reaction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*left/right*).
* Endothermic
	+ Decreasing the temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the value of K (*increases/decreases*)*.*
	+ Decreasing the temperature shifts the reaction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*left/right*).

**End of Chapter 13 Practice Problems**

#31, 35, 37, 39

For detailed solutions to these problems, go to the [OpenStax website](https://openstaxcollege.org/textbooks/chemistry/resources) and download the “Student Answer and Solution Guide.”