**Exercises to the text "Thermodynamics"**

**1. Answer the questions to the text:**

1. What is [thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802" \o "THERMODYNAMICS)?

Thermodynamics is a science that studies the relationship between heat, work, and energy.

1. Where can [thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) be applied?

[Thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) can be applied to chemistry, biology, and other sciences

1. How can physical life be described?

Physical life itself can be described as a continual thermodynamic cycle of transformations between heat and energy.

1. Are transformations perfectly efficient?

Transformations are never perfectly efficient.

1. Can the work output of a system be greater than the net energy input?

The work output of a system can never be greater than the net energy input

1. Is it possible to create a perpetual motion machine?

it is not possible to create a perpetual motion machine

1. What creations were made due to [the laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804)?

The internal combustion engine and the refrigerator were made due to [the laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804)

1. How can any physical system be described?

Any physical system can be described by specifying its properties, such as pressure, temperature, or chemical composition.

1. What do [the laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804) predict?

T[he laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804) predict he equilibrium state of the system.

**2. Insert a preposition or a conjunction if necessary :**

1. These transformations are never perfectly efficient, **as** the [second law of thermodynamics](http://www.answers.com/topic/second-law-of-thermodynamics-2) shows.
2. [Thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) is the study of the relationships **between** heat, work, and energy.
3. The work output of a system can never be greater **then** the net energy input.
4. The three laws of [thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) describe these changes and predict the equilibrium state **of** the system.
5. [The laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804) made possible such highly useful creations **as** the internal combustion engine and the [refrigerator](http://www.answers.com/topic/refrigerator).
6. It has a clear application **to** chemistry, biology, and other sciences.
7. It can be described **by** specifying its properties, such as [pressure](http://www.answers.com/topic/pressure), temperature, or chemical composition.
8. Any physical system will spontaneously approach an [equilibrium](http://www.answers.com/topic/dynamic-equilibrium).

**3. Insert a necessary word or word combination:**

[Thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802), application, transformations, efficient, output, input, perpetual motion machine, internal combustion engine, [equilibrium](http://www.answers.com/topic/dynamic-equilibrium),  external constraints, predict, physical system

1. [**Thermodynamics**](https://lms.kgeu.ru/mod/resource/view.php?id=82802) is the study of the relationships between heat, work, and energy.
2. Any physical system will spontaneously approach an [**equilibrium**](http://www.answers.com/topic/dynamic-equilibrium)
3. If **external constraints** are allowed to change, these properties generally change.
4. Many industrialists of the early nineteenth century believed it might be possible to create a **perpetual motion machine.**
5. Physical life itself can be described as a continual [thermodynamic cycle](http://www.answers.com/topic/thermodynamic-cycle) of **transformations** between heat and energy.
6. **Physical system** can be described by specifying its properties, such as [pressure](http://www.answers.com/topic/pressure), temperature, or chemical composition.
7. [The laws of thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82804) made possible such creations as the **internal combustion engine** and the [refrigerator](http://www.answers.com/topic/refrigerator).
8. The three laws of [thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) describe these changes and **predict** the equilibrium state of the system.
9. The transformations are never perfectly **efficient.** .
10. The work **output** of a system can never be greater than the net energy **input**.
11. [Thermodynamics](https://lms.kgeu.ru/mod/resource/view.php?id=82802) has a clear **application** to chemistry, biology, and other sciences.