

Short Communication

The law of symmetry and its application

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In this paper, the content of the law of symmetry and its application in science and production is introduced. It emphasizes the law's effect on scientific law.

Key words: Symmetry principle, scientific law, translation variant, symmetry, geometrical, rotational.

INTRODUCTION

Since modern times, more and more scientific laws have been discovered. These laws usually fit one or a few aspects. Is there any relationship between these laws? Is there a law that is obeyed by all fields of science? The law of symmetry is the law of this kind.

THE CONTENT OF THIS LAW

The law of symmetry contains several sub laws:

Translation invariant: if the conditions are the same, no matter when and where it happens, the results are the same.

Geometrical symmetry: if the starting condition is symmetrical, the result is symmetrical.

Rotational symmetry: if 2 objects are of the same attributes, and the starting conditions are the same, the results of the 2 objects are the same.

THE 2 DESCENDABLE LAWS

(1) For any group of given conditions, there must be only one result.

(2) If all functions in a process are linear, the result function must be linear.

NOTICE

The law of symmetry is fit with any field of science, but it cannot be used wrongly.

For example, '1+1' paradox: if it's known that $a+b=2$, can we conclude $a=b=1$?

The wrong answer is yes, because a and b are of the same attribute, if we suppose $a>b$, we conclude $a<b$, so $a=b$.

The lead to this wrong answer is that we do not realize a and b are not certain, the premise of the law of symmetry is that the answer is certain.

For another example, Rabbit paradox: if the 2 identical twin rabbits are fed in the same condition, can we conclude that their blood pressure is the same?

The wrong answer is yes, because the 2 rabbits are of the same attribute, and the starting condition is the same, so their blood pressure is the same.

The lead to this wrong answer is that we do not realize the factors that affect blood pressure are very complex, but we simply think that they are in the same condition.

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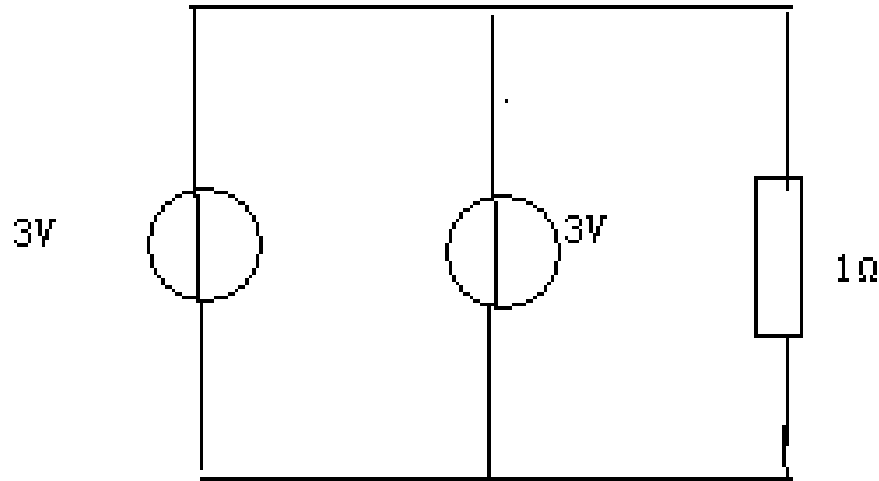


Figure 1. An electric circuit.

The real factors may not be the same.

THE APPLICATION OF THIS LAW

Mathematics

For example, to do this question, (Chunfeng, 2013):

$$A = \iint_D \frac{\sqrt{a}}{\sqrt{a}+\sqrt{b}} da * db \quad D: a^2+b^2 \leq 1,$$

In this question, a and b are rotationally symmetrical, so

the answer $A = B = \iint_D \frac{\sqrt{b}}{\sqrt{a}+\sqrt{b}} da * db$
 so we can add these two answers,

$$A+B = \iint_D \frac{\sqrt{a}+\sqrt{b}}{\sqrt{a}+\sqrt{b}} da * db = \iint_D 1 da * db$$

that is so easy. $2A = \iint_D 1 da * db$, we can easily know the value of A.

Results

If the area of D is 1, that is $2A=1$, so we can know $A=0.5$. The answer is easy to get.

Discussion

From the above example, if we do not use this law, it is

very hard to solve the problem. But if we use this law, the problem is very easy to solve. So we can see, using this law can make some problem easier to solve.

We can prove some models are not exact

For example, as shown in Figure 1 (Xiyou, 2013), the electric current of the 2 powers` wires can be any value. It contracts the 1st descendable law, so it is wrong. In fact, any electric power source has resistance.

Results

For the electric current of the 2 powers` wires to be any value, this model isn`t exact.

Discussion

We sometimes use the model shown in Figure 1, but this model is not exact. If we do not know this law, we may draw the wrong conclusion. This law can correct people`s wrong idea.

THE PROBLEM THAT CANNOT BE SOLVED NOW

The only thing that cannot be proved now is this one. Material wave is a kind of probability wave. Until now, we can only discuss its probability. It seems to contradict the 1st sublaw, but Einstein said that the god does not play the game which throws the dice. The real fact may not be known now.

Conclusion

The above cases show that this law is correct and exact. Using this law, we can avoid making mistakes and find what is wrong and not exact. We can also discover the mistakes or limitations of people`s current point of view.

Conflict of Interest

The author(s) have not declared any conflict of interest.

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