**Partial differential equations**

**Homework**

**Task 1. Ordinary differential equations**

**Methodical instructions**

In Lecture 1, we considered the concept partial differential equations. This is an is an extension of the ordinary differential equation to the case of the unknown function of many variables. In Problem 1, we recall how ordinary differential equations are solved.

It is necessary to solve the differential equation



with initial conditions



**Actions**

1. Find the general solution of the given Cauchy problem. This is  if *a=λ*2 and  if *a=-λ*2.
2. Using the initial conditions, find the constant *c*1 and *c*2.
3. Put these constants to the formula of the general solution. The result is the solution of the problem.
4. Make sure that the result satisfies the given equation and initial conditions.

**Table of parameters**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **variant** | ***t*0** | ***a*** | ***b*** | ***c*** | **name** |
| 1 | 0 | 4 | 2 | -1 | Ғайнуллаұлы |
| 2 | -1 | -9 | -1 | -2 | Шахаманова |
| 5 | 2 | 1 | 2 | 2 | Шурегеева |