In the first problem, we are required to predict the spread of dandelions using a mathematical model, given that dandelions in their “puffball” stage are adjacent to an open land with an area of one hectare. The model should be able to predict the distribution of dandelions in different time periods (1, 2, 3, 6, and 12 months) and the effects of several climatic conditions should be included.

The second problem asks us to develop a mathematical model to determine an “impact factor” for invasive species. Variables like the plant’s characteristics and the nature and severity of the harm it imposes on the environment should be included in the model. We should test the model by using it to determine an impact factor for dandelions since the plant has a complex relationship with humans and is often considered invasive. Furthermore, we are required to apply the model to two other plant species that are widely considered invasive. We must identify the region where these plants are invasive.