Mathematical and Computer Modeling of Biological Processes

**Practice 8**

Consider the FitzHugh-Nagumo model of neuronal oscillations:

(8.1)

where is the voltage of the action potential, *w* is a variable acting to diminish *v*, i.e. a channel blocking mechanism, *I* is the applied current coming from the soma, is a small parameter, and is a positive constant.

Initial conditions for (*v w*,) are given by

1. (0.4, 0);
2. (0.5, 0); (8.2)
3. (0.6, 0).

**Tasks**

1. Solve model (8.1) with three initial conditions (8.2) at *a* = 0.3,= 0.001,= 2.5, and *I* =0.
2. Draw the graphs for *dv*
   1. *v* versus ;
   2. *v(t)* and *w(t)* versus time *t*.