|  |  |  |  |
| --- | --- | --- | --- |
| Math216, HW9 |  |  | Section:21/22/23/24 |
| Name: |  | UMID: |  |

**Question 1: Fill the table, show your work!**

|  |  |
| --- | --- |
| **C:** | **Choose center\spiral\node\saddle** |
| **C=0** |  |
| **C=1.5** |  |
| **C=3** |  |
| **C=5** |  |
| **The eigenvalues, as a function of c, are:** | |

Show your work:

**Question 2: Hint – use Theorem 2 from page 388.**

**Question 3:**

1. **Mark your answer (no explanation is needed, See section 6.3)  
   predator-prey / competition / coorperation.**
2. **Answer the question for:   
   x=0:**

**y=0:**

1. **The Jacobian is:**
2. **Fill the table, show your work.**

|  |  |
| --- | --- |
| Critical point | Type of stability |
|  |  |
|  |  |
|  |  |

Show your work:

1. **Sketch phase portrait:**