

Differential Equations Seminar: Week 7 Solutions

For each of the following systems, show the non-existence of cycles:

1. No equilibrium solutions which implies no cycles.
2. Use Bendixson-Dulac Theorem with $\alpha(x, y) = 1$.
3. Use Bendixson-Dulac Theorem with $\alpha(x, y) = 1$.
4. No equilibrium solutions which implies no cycles.
5. Use Bendixson-Dulac Theorem with $\alpha(x, y) = e^{-4y}$.
6. No equilibrium solutions which implies no cycles.
7. Use Bendixson-Dulac Theorem with $\alpha(x, y) = 1$.
8. Use Bendixson-Dulac Theorem with $\alpha(x, y) = e^{-2x}$.