

Index

A

Asymptotically Stable *p.7*

B

Bendixson's Theorem *pp.25 – 29*

Bifurcation *pp.12 – 13*

Bifurcation (Fold) *pp.12 – 13*

Bifurcation (Transcritical) *pp.12 – 15*

Bifurcation Diagram *pp.12, 15 – 17*

C

Carrying Capacity *p.9*

Center Manifold Theory *pp.39 – 45*

Centers (Equilibrium Point) *pp.22, 26*

Characteristic Equation *p.34*

Coordinate Transformation Matrix *pp.18, 20 – 41*

D

Divergence *pp.25 – 29*

E

Equilibrium Point *pp.3 – 4*

F

Finite Escape Time *pp.9 – 10*

Focus Node *pp.22, 33*

Fold Bifurcation *pp.12 – 13*

G

Green's Theorem *pp.25 – 27*

H

Hartman Grobman Theorem *pp.23 – 24*

Homeomorphic *p.23*

Hopf Bifurcation *pp.35 – 38*

Hyperbolic Equilibrium Point *pp.22 – 24*

I

Index Theory *p.35*

Invariant Manifold *pp.42 – 45*

L

Limit Cycle *pp.10 – 12, 33 – 38*

Linearization at a Fixed Point *pp.5 – 8, 23 – 24*

Logistic Equation *p.9*

Lorenz Attractor *p.12*

M

Metzler Matrix *p.31*

N

Node *pp.21, 33*

P

Pendulum *pp.7 – 8*

Periodic Orbits *pp.25 – 34*

Phase Portrait *pp.5, 17 – 19*

Pitchfork Bifurcation	<i>pp.</i> 12, 15 – 17
Poincare Bendixson Criterion	<i>pp.</i> 32 – 34
Positive Invariant Set	<i>pp.</i> 21, 29 – 34
Positive System	<i>p.</i> 31
Predator/prey Model	<i>pp.</i> 30 – 31
<i>R</i>	
Region of Attraction	<i>p.</i> 15
Routh Hurwitz Criterion	<i>p.</i> 34
<i>S</i>	
Saddle Node	<i>pp.</i> 19 – 21
Sink Node	<i>pp.</i> 19, 21
Source Node	<i>pp.</i> 19, 21
Stability	<i>p.</i> 5
Stable	<i>p.</i> 5
Subcritical Hopf Bifurcation	<i>pp.</i> 37 – 38
Subcritical Pitchfork Bifurcation	<i>p.</i> 17
Supercritical Hopf Bifurcation	<i>pp.</i> 35 – 37
Supercritical Pitchfork Bifurcation	<i>pp.</i> 15 – 16
<i>T</i>	
Taylor Series Expansion	<i>pp.</i> 6, 39 – 40, 44 – 45
Transcritical Bifurcation	<i>pp.</i> 12 – 15
<i>V</i>	
Van Der Pol Oscillator	<i>pp.</i> 11 – 12