

Core and Extra Credit Problems

All sections and problems are from Stewart, *Calculus, 5th Edition*.

10. Differential Equations	
10.1 Modeling with Differential Equations	1.5.8.9.11.14
<i>(10.2) Direction Fields and Euler's Method</i>	
10.3 Separable Equations	4.6.13.22.32.42
10.4 Exponential Growth and Decay	4,5,16,22
10.5 The Logistic Equation	1,4,5,7,13
10.6 Linear Equations	8,9,15,29
<i>(10.7) Predator-Prey Systems</i>	
Homework #1 due Tuesday, May 29th	
EXTRA CREDIT	<i>Problems Plus</i> on page 684
18. Second-Order Differential Equations	
<i>(Appendix G: Complex Numbers)</i>	
18.1 Second-Order Linear Equations	1,2,5,14,15,17,26
18.2 Nonhomogeneous Linear Equations	1,2,3,12,20,26
<i>(18.3 Applications of Second-Order Diff. Eq.)</i>	
18.4 Series Solutions	1,3,12
Homework #2 due Monday, June 4th	
EXTRA CREDIT	684: 12, 18; 1204: 19
13. Vectors and the Geometry of Space	
13.1 Three-Dimensional Coordinate Systems	6,18,21,23,25,29,41
13.2 Vectors	1,4,8,18,24,28,32
13.3 The Dot Product	1,2,4,8,11,14,17, 37, 41, 53
13.4 The Cross Product	2, 9, 12, 26, 33, 36, 39, 45
13.5 Equations of Lines and Planes	1,3,15,16,17,30, 38, 51, 61, 73
<i>(13.6 Cylinders and Quadric Surfaces)</i>	
Homework #3 due Thursday, June 7th	
EXTRA CREDIT	<i>Problems Plus</i> on page 883

14. Vector Functions	
14.1 Vector Functions and Space Curves	4,6,9,11, 16, 19-24, 34, 37, 39
14.2 Derivatives and Integrals of Vector Functions	3, 10, 17, 21, 22, 29, 31, 47
14.3 Arc Length and Curvature	2, 7, 10, 14, 17, 26, 40, 43, 47, 49, 50
14.4 Motion in Space: Velocity and Acceleration	1,2,5,21,22, 28, 33
Homework #4 due Tuesday, June 12th	
EXTRA CREDIT	<i>Problems Plus</i> on page 920
15. Partial Derivatives	
15.1 Functions of Several Variables	1,2,6,11,30,32
15.2 Limits and Continuity	3,7,10,11,37,39
15.3 Partial Derivatives	1,4,5,16,21,51,66,83
15.4 Tangent Planes and Linear Approximations	2,12,20,24,31
<i>(15.5 The Chain Rule)</i>	
15.6 Directional Derivatives and Gradient Vector	3,9,15,23,27,36,38
15.7 Maximum and Minimum Values	1,3,5,11,23,37
15.8 Lagrange Multipliers	1,2,4,10,23,25,39
Homework #5 due Tuesday, June 19th	
EXTRA CREDIT	<i>Problems Plus</i> on page 1014
16. Multiple Integrals	
16.1 Double Integrals over Rectangles	3,6,8,12,17
16.2 Iterated Integrals	4,5,14
16.3 Double Integrals over General Regions	3,10,24,39,43
16.4 Double Integrals in Polar Coordinates	1,3,7,10,18,21,33,36
<i>(16.5 Applications of Double Integrals)</i>	
16.6 Surface Area	4,14
16.7 Triple Integrals	3,8,16,22,26
13.7 Cylindrical and Spherical Coordinates	4,10,13,20,23,28,34,36,50
16.8 Triple Integrals in Cylindrical and Spherical Coordinates	3, 8, 18
<i>(16.9 Change of Variables in Multiple Integrals)</i>	
Homework #6 due Wednesday, June 27	
EXTRA CREDIT	<i>Problems Plus</i> on page 1088