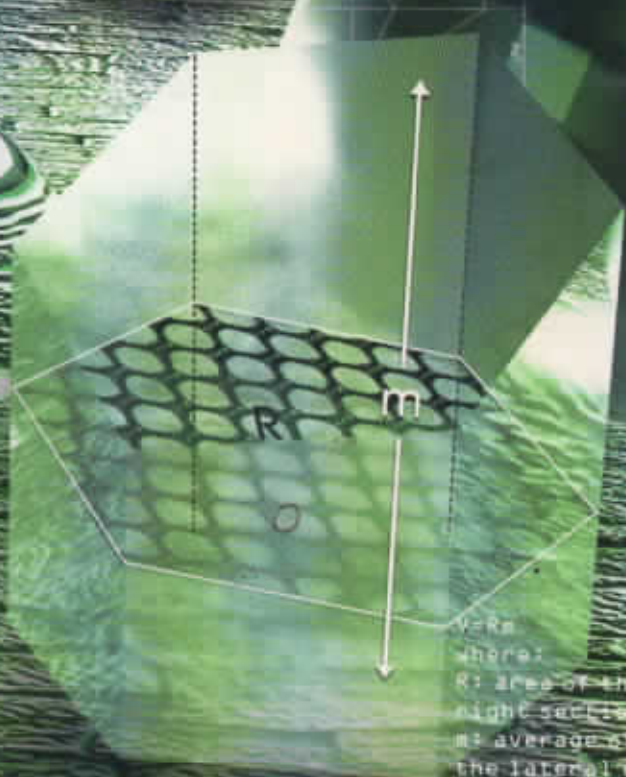


# Solid Mensuration: Understanding the 3-D Space



Richard T. Earnhart

C165  
576-3  
Ea 12  
2011



Solid Mensuration:  
Understanding  
the  Space

# CONTENTS

Preface .....	vii	
Acknowledgements .....	viii	
Chapter 1	Plane Figures .....	1
1.1	Polygons .....	1
1.2	Triangles .....	12
1.3	Quadrilaterals .....	22
Chapter 2	Other Plane Figures .....	44
2.1	Circles .....	44
2.2	Star Polygons .....	63
2.3	Elliptical Section .....	65
2.4	Parabolic Section .....	66
2.5	Composite Plane Figures .....	67
2.6	Irregular Shaped Figures .....	69
Chapter 3	Polyhedra .....	75
3.1	Introduction to Solids .....	75
3.2	Polyhedra .....	85
Chapter 4	Prisms and Cylinders .....	96
4.1	Prism .....	96
4.2	Parallelepiped .....	105
4.3	Cubes .....	107
4.4	Cylinder .....	112
Chapter 5	Pyramids and Cones .....	124
5.1	Pyramid .....	124
5.2	Cone .....	132
Chapter 6	Frustums, Truncated Prisms and .....	144
	Cylinders, Prismatoid	
6.1	Frustum of a Right Circular Cone .....	144
6.2	Frustum of a Regular Pyramid .....	147
6.3	Truncated Cylinder .....	152
6.4	Truncated Prism .....	152
6.5	Prismatoid .....	153

Chapter 7	Spheres .....	165
	7.1 Definitions Relating to Sphere .....	165
	7.2 Surface Area and Volume of a Sphere .....	169
	7.3 Inscribed Solids Involving Spheres .....	172
	7.4 Spherical Segment .....	176
	7.5 Zone .....	179
	7.6 Lune .....	180
	7.7 Spherical Wedge .....	181
	7.8 Spherical Sector .....	185
	7.9 Spherical Cone .....	186
	7.10 Spherical Polygon .....	188
	7.11 Spherical Pyramid .....	190
	7.12 Spherical Triangle .....	192
Chapter 8	Solids of Revolution and Composite Solids .....	205
	8.1 Circular or Ring Torus .....	205
	8.2 Circular Paraboloid .....	206
	8.3 Ellipsoid .....	207
	8.4 Pappus-Guldinus Theorems .....	211
	8.5 Composite Solids .....	215
APPENDICES		
	A Table of Reference .....	223
	B Summary of Formulas .....	224
	C Index .....	228
	D Comprehensive Examination .....	233