

## Geometry and Discrete Mathematics Textbook Exercises

Lesson	Assigned Work
Geometric Vectors	Pages 8 - 10 #1 - 4 and 6 - 12
Adding Vectors	Pages 15 - 18 #1, 3, 6, 8, 9 - 15 and 17
Subtracting Vectors	Pages 22, 23 #1, 2, and 4 - 10
Multiplying a Vector by a Scalar	Pages 29 - 33 #2, 3, 5, 6, 8, 9, 11, 12, 15 and 17
Cartesian Vectors	Pages 40 - 42 #1, 2, 5 - 10, 12 - 15, 18 - 20, 22 and 25
Modelling Velocity and Force	Pages 50, 51 #1 - 3, 5, 6, 8, and 10 - 13
The Dot Product	Pages 55 - 58 #1 - 3, 6 - 12, 16, and 18 - 21
Properties of the Dot Product and Projections	Pages 64 - 66 #2 - 4, 6 - 11, and 13 - 16
<b>Review Exercises</b>	<b>Pages 69 - 71 #1 - 3, 5 - 8, 10 - 12, 14 - 18(a,d), 20, 22a, &amp; 23, and page 72 #3 and 4</b>
Introduction to 3-space	Pages 80 - 83 #1, 2, 5 - 10, 12, 13, 16, 19 and 21
Operations on Cartesian Vectors in 3-space	Pages 88 - 90 #2 - 5, 7, 9 - 11, and 13 - 19
The Dot Product in 3-space	Pages 95 - 98 #1 - 3, 4a, 5, 6, 9 - 11, 14, 16, 18(a,d), 19 and 22
The Cross Product	Pages 106 - 110 #2, 4, 6(b,d), 8(a,c), 9, 10(a,d), 11(hint: use the diagram, not the formula), 12, 13a, 14b, 16 and 18
Properties of the Cross Product	Pages 114 - 116 #2 - 7, 11, 12, 14, 16, 18 and 19
<b>Review Exercises</b>	<b>Pages 119 - 121 #2 - 11, 13, 14, 17, 19 and Page 122 #4</b>
Revisiting The Equation of a Line in 2-Space	Pages 131 - 134 #1 - 3, 5, 7, 9, 11 - 13, 15, 19, and 23
The Equation of a Line in 3- Space	Pages 141 - 145 # 1 - 3, 5, 9 - 11, 13, 15, 16, 19, 24,
The Equation of a Plane	Pages 152 - 155 #1 - 4, 7, 10a, 11b, 12b, 13b, 15(b,c), 16, 19, 21, and 26
Problems Involving Lines and Planes	Pages 160 - 162 #2 - 4, 6, 7, 9, 11, 12, 15a, and 17(a,b)
Problems Involving Two Planes	Pages 168 - 170 #4 - 10, 15, and 16
Problems Involving Three Planes	Pages 178 - 181 #5, 8, 12 - 15, and 18
Solving Linear Systems Using Matrices	Pages 188 - 190 #5, 6, 7(a,d), 8, and 9
Solving Linear Systems Using a Graphing Calculator	Pages 194 - 196 #3 - 11
<b>Review Exercises</b>	<b>Pages 204 - 207 #4 - 8, 11 - 13, 17a, 18, 19, 21, 22, 25(c,d), 26, and Page 208 #6</b>
Demonstration and Proof	Pages 224 - 226 #1, 2, 5, 6, 8, 10, 12 - 15
Proving the Pythagorean Theorem	Pages 230 - 234 #1, 3, 4, 5, 6, 8, and 11
Coordinate Proofs	Pages 238 - 241 #1 - 4, 6, 8, 10, and 12
Vector Proofs Using the Addition Law	Pages 244 - 245 #1 - 4, 6, 7, and 9
<b>Review Exercises</b>	<b>Pages 248 - 249 #3, 4, 5, 6, 10, 11, 13, 14 and 16</b>
Deductive Proof	Pages 263 - 266 #2, 3, 4, 7, 8, 10, 12, 14, 18 and 20
Indirect Proof	Pages 269 - 271 #1, 2, 3, 5, 8, 9, 10, 11, and 15
Statements and Their Converses	Pages 275 - 277 #4, 5, 6, 9 (see page 275), 11, 13, 14 and 15
Generating Multiple Solutions	Pages 279 - 282 #1, 4, 5, 6, 8, 9, 10, 12, 15, and 16
Posing and Solving Problems	Pages 286 - 287 #1, 4, 5, 6, 7, 9, 10, 11, and 12
<b>Review Exercises</b>	<b>Pages 288 - 289 #1, 2, 3, 4, 6, 9, 10, 11, 14, 17, and 18</b>

The Fundamental Counting Principle	Pages 306 - 308 #3, 4, 5, 6, 7, 9, 12, 13, 14, 15, and 17
Permutations Involving Different Objects	Pages 314 - 316 #2, 3, 5, 6, 7, 9, 10, 12, 14, 15, 17 and 19
Permutations Involving Identical Objects	Pages 320 - 321 #1, 2, 3, 5, 6, 8, 11, 12, and 13
Permutations With Restrictions	Pages 326 - 327 #1, 2, 4, 5, 8, 10, 11, 13, 14, 16 and 19
Combinations	Pages 331 - 335 #2, 3, 4, 6, 7, 8, 10, 11, 13, 16, 19, 21, and 27
<b>Review Exercises</b>	<b>Pages 337 - 339 #1, 2, 3, 6, 8, 9, 10, 13, 14, 15, 18, 21, 23, and 27</b>
Pascal's Triangle	Pages 346 - 349 #1, 2, 5, 6, 7, 11, 17, and 21
The Binomial Theorem	Pages 354 - 356 #1, 2, 4, 5, 8, 10, 11, 12, 13, 14, and 17
Sigma Notation	Pages 360 - 362 #1, 2, 4, 6, 7, 9, and 11
Mathematical Induction	Pages 368 - 370 #1, 3, 5, 6, 9, 10, and 17a
Applications of Mathematical Induction	Pages 374 #1 to 9
<b>Review Exercises</b>	<b>Pages 376 - 377 #1, 5, 6, 7, 9(a,c), 10, 11, and 12</b>