

<b>PREFACE</b>	<b>ix</b>
<b>TO THE STUDENT</b>	<b>xi</b>
<b>CHAPTER 1 Angles and Measurement</b>	<b>1</b>
<b>Objectives</b>	<b>1</b>
<b>1-1 Introduction</b>	<b>2</b>
<b>1-2 Angles in Trigonometry</b>	<b>2</b>
<b>1-3 Angle Measure</b>	<b>3</b>
<b>1-4 Conversions of Angle Measure</b>	<b>4</b>
<b>1-5 Standard Position of an Angle</b>	<b>8</b>
<b>1-6 Finding the Complement and Supplement of an Angle</b>	<b>10</b>
<b>Review Exercise</b>	<b>11</b>
<b>Answers</b>	<b>13</b>
<b>CHAPTER 2 Trigonometric Functions</b>	<b>19</b>
<b>Objectives</b>	<b>19</b>
<b>2-1 Definitions of Trigonometric Functions of Angles</b>	<b>20</b>
<b>2-2 Functions of Special Angles</b>	<b>24</b>
<b>2-3 Trigonometric Functions of Quadrantal Angles</b>	<b>29</b>
<b>2-4 Values of Trigonometric Functions of Angles     between <math>0^\circ</math> and <math>90^\circ</math></b>	<b>30</b>
<b>2-5 Functions of any Angle</b>	<b>31</b>
<b>2-6 Interpolation</b>	<b>32</b>
<b>Review Exercise</b>	<b>35</b>
<b>Answers</b>	<b>38</b>

<b>CHAPTER 3 Solutions to Triangles</b>	<b>45</b>
<b>Objectives</b>	<b>45</b>
<b>3-1 Introduction</b>	<b>46</b>
<b>3-2 Solving Right Triangles</b>	<b>46</b>
<b>3-3 Applications of Right Triangles</b>	<b>48</b>
<b>3-4 Oblique Triangles</b>	<b>54</b>
<b>3-5 Law of Cosines</b>	<b>54</b>
<b>3-6 Law of Sines</b>	<b>58</b>
<b>3-7 Ambiguous Case</b>	<b>60</b>
<b>Review Exercise</b>	<b>66</b>
<b>Answers</b>	<b>67</b>
<b>CHAPTER 4 Application of Radian Measure</b>	<b>71</b>
<b>Objectives</b>	<b>71</b>
<b>4-1 Introduction</b>	<b>72</b>
<b>4-2 Length of an Arc of a Circle</b>	<b>72</b>
<b>4-3 Linear and Angular Velocity</b>	<b>74</b>
<b>4-4 Areas of Sectors and Segments of Circles</b>	<b>76</b>
<b>Review Exercise</b>	<b>78</b>
<b>Answers</b>	<b>79</b>
<b>CHAPTER 5 Trigonometric Functions of Real Numbers</b>	<b>81</b>
<b>Objectives</b>	<b>81</b>
<b>5-1 Introduction</b>	<b>82</b>
<b>5-2 Expansion Formulas (Optional)</b>	<b>82</b>
<b>5-3 Circular Functions</b>	<b>83</b>
<b>5-4 Circular Functions of Special Numbers</b>	<b>86</b>
<b>5-5 Evaluating Circular Functions with a Table</b>	<b>88</b>
<b>Review Exercise</b>	<b>91</b>
<b>Answers</b>	<b>92</b>

<b>CHAPTER 6 Graphing Trigonometric Functions</b>	<b>95</b>
<b>Objectives</b>	<b>95</b>
<b>6-1 Introduction</b>	<b>96</b>
<b>6-2 Graphing Sine Functions</b>	<b>96</b>
<b>6-3 Graphing Cosine Functions</b>	<b>105</b>
<b>6-4 Graphing Tangent Functions</b>	<b>110</b>
<b>6-5 Graphing Cotangent Functions</b>	<b>115</b>
<b>6-6 Graphing Secant Functions</b>	<b>121</b>
<b>6-7 Graphing Cosecant Functions</b>	<b>126</b>
<b>Review Exercise</b>	<b>131</b>
<b>Answers</b>	<b>132</b>
<b>CHAPTER 7 Inverse Trigonometric Functions</b>	<b>141</b>
<b>Objectives</b>	<b>141</b>
<b>7-1 Introduction</b>	<b>142</b>
<b>7-2 Inverse Sine Function</b>	<b>143</b>
<b>7-3 Inverses of Other Trigonometric Functions</b>	<b>144</b>
<b>7-4 Problems Involving Inverse Trigonometric Functions</b>	<b>148</b>
<b>Review Exercise</b>	<b>152</b>
<b>Answers</b>	<b>154</b>
<b>CHAPTER 8 Fundamental Trigonometric Identities</b>	<b>159</b>
<b>Objectives</b>	<b>159</b>
<b>8-1 Introduction</b>	<b>160</b>
<b>8-2 Fundamental Identities</b>	<b>160</b>
<b>8-3 Simplifying Trigonometric Expressions</b>	<b>161</b>
<b>8-4 Proving Identities</b>	<b>164</b>
<b>Review Exercise</b>	<b>168</b>
<b>Answers</b>	<b>170</b>

<b>CHAPTER 9 Additional Identities</b>	<b>177</b>
<b>Objectives</b>	<b>177</b>
<b>9-1 Cosine of Difference of Two Angles</b>	<b>178</b>
<b>9-2 Cofunction Identities</b>	<b>179</b>
<b>9-3 Negative of an Angle</b>	<b>180</b>
<b>9-4 Additional Identities for Sum and Difference of Angles</b>	<b>182</b>
<b>9-5 Double-Angle Identities</b>	<b>185</b>
<b>9-6 Half-Angle Identities</b>	<b>188</b>
<b>9-7 Summary of Additional Identities</b>	<b>193</b>
<b>Review Exercise</b>	<b>194</b>
<b>Answers</b>	<b>196</b>
<b>CHAPTER 10 Product and Sum Formulas</b>	<b>207</b>
<b>Objectives</b>	<b>207</b>
<b>10-1 Sums and Differences of Two Sines or Cosines</b>	<b>208</b>
<b>Review Exercise</b>	<b>211</b>
<b>Answers</b>	<b>212</b>
<b>CHAPTER 11 Trigonometric Equations</b>	<b>217</b>
<b>Objectives</b>	<b>217</b>
<b>11-1 Introduction</b>	<b>218</b>
<b>11-2 Basic Equations of the form <math>T(\theta) = a</math></b>	<b>218</b>
<b>11-3 First-Degree Equations of One Function</b>	<b>220</b>
<b>11-4 Second-Degree Equations of One Function</b>	<b>222</b>
<b>11-5 Equations with More Than One Function</b>	<b>224</b>
<b>11-6 Equations with Double Angles or Half Angles</b>	<b>228</b>
<b>Review Exercise</b>	<b>230</b>
<b>Answers</b>	<b>231</b>

<b>CHAPTER 12 Complex Numbers</b>	<b>235</b>
<b>Objectives</b>	<b>235</b>
12-1 Introduction	236
12-2 Complex Numbers	236
12-3 Graphing Complex Numbers	239
12-4 Trigonometric Form of Complex Numbers	241
12-5 Multiplication and Division of Complex Numbers in Trigonometric Form	243
12-6 Powers and Roots of Complex Numbers	245
Review Exercise	247
Answers	249
<b>APPENDIX A Basic Algebra Review</b>	<b>253</b>
<b>Objectives</b>	<b>253</b>
A-1 Introduction	254
A-2 Sets	254
A-3 Relations and Functions	257
A-4 Rectangular Coordinate System	263
Review Exercise	265
Answers	269
<b>APPENDIX B Logarithms</b>	<b>275</b>
<b>Objectives</b>	<b>275</b>
B-1 Introduction	276
B-2 Logarithms and Exponents	276
B-3 Graphs of $y = a^x$ and $y = \log_a x$	278
B-4 Properties of Logarithms	280
B-5 Common or Briggs Logarithms	285

<b>B-6</b>	<b>Finding the Common Logarithm of a Given Number</b>	<b>285</b>
<b>B-7</b>	<b>Finding the Antilog of a Given Number</b>	<b>289</b>
<b>B-8</b>	<b>Computation with Common Logarithms</b>	<b>290</b>
<b>B-9</b>	<b>Changing Bases</b>	<b>292</b>
<b>B-10</b>	<b>Computation with Natural Logarithms</b>	<b>294</b>
<b>B-11</b>	<b>Exponential Equations</b>	<b>294</b>
<b>B-12</b>	<b>Solving Logarithmic Equations</b>	<b>297</b>
	<b>Review Exercise</b>	<b>298</b>
	<b>Answers</b>	<b>301</b>
 <b>APPENDIX C Tables</b>		 <b>309</b>
<b>C-1</b>	<b>Natural Trigonometric Functions</b>	<b>310</b>
<b>C-2</b>	<b>Trigonometric Ratios for Angles Measured in Radians</b>	<b>315</b>
<b>C-3</b>	<b>Logarithms of Numbers</b>	<b>319</b>
<b>C-4</b>	<b>Powers and Roots</b>	<b>321</b>
 <b>INDEX</b>		 <b>322</b>