(Brown) textbook: 12-5 etc. ANSWERS. STRUCTURE & METHOD Book 2.

Lessons 12-5 to 12-9: Note that because of roundoff error, answers obtained by using the trigonometric tables occasionally differ slightly from the answers given here, which are correct to the number of significant digits shown.

12-5.

Written Exercises, pages 577–578

1. $\angle B = 53.8°$; $a = 40.2$; $b = 54.9$
3. $\angle A = 24.6°$; $b = 5.13$; $c = 5.65$
5. $\angle A = 41.7°$; $a = 66.6$; $c = 100$ **7.** $b = 222$; $\angle A = 46.0°$; $\angle B = 44.0°$ **9.** $c = 0.338$; $\angle A = 21.3°$; $\angle B = 68.7°$ **11.** $\angle A = 31°50'$; $a = 222$; $b = 357$ **13.** $\angle B = 74°30'$; $b = 16.2$; $c = 16.8$ **15.** $\angle B = 59°10'$; $a = 31.9$; $c = 62.3$
17. 45.2° **19.** 53.1°, 126.9° **21. a.** 6.18
b. 6.50

12-5.

Problems, pages 578–579 **1.** 31.7° **3.** 64.1°
5. 545 ft **7.** 317 ft **9.** 23.4° **11.** 358 ft
13. 1.13 m **15.** 660 m **17.** 109.4°

Mixed Review Exercises, page 579

1. sin 450° = 1, cos 450° = 0, tan 450° and sec 450° undef., csc 450° = 1, cot 450° = 0

2. $\sin(-135°) = \cos(-135°) = -\frac{\sqrt{2}}{2}$, $\tan(-135°) = \cot(-135°) = 1$, $\sec(-135°) = \csc(-135°) = -\sqrt{2}$

3. $\sin 330° = -\frac{1}{2}$, $\cos 330° = \frac{\sqrt{3}}{2}$, $\tan 330° = -\frac{\sqrt{3}}{3}$, $\cot 330° = -\sqrt{3}$, $\sec 330° = \frac{2\sqrt{3}}{3}$, $\csc 330° = -2$

4. $\sin(-240°) = \frac{\sqrt{3}}{2}$, $\cos(-240°) = -\frac{1}{2}$, $\tan(-240°) = -\sqrt{3}$, $\cot(-240°) = -\frac{\sqrt{3}}{3}$, $\sec(-240°) = -2$, $\csc(-240°) = \frac{2\sqrt{3}}{3}$

5. $-\frac{1}{x+1}$ **6.** $5m^2\sqrt{2}$ **7.** $\frac{1}{y-2}$ **8.** $200a^{12}b^5$
9. $\frac{1}{x^{1/2}}$ **10.** $2u^3 - u^2 - 7u + 6$

Written Exercises, pages 582–583 **1.** 2.46
3. 18.6 **5.** 42.6 **7.** 55.8° **9.** 13.8°
11. 87.4° **13.** 7.83 **15.** 69.2°, 51.1°, 59.7°

Problems, pages 583–584 **1.** 26.9 km
3. 32.2°, 87.8°, 60.0° **5.** 16.6 mi **7.** 63.7 ft
9. perimeter = 45.4 km, area = 103.8 km^2
11. 31.5 m, 40.1 m

Computer Exercises, page 584

2. a. $\angle A = 53.8°$; $\angle B = 36.2°$; $c = 64.4$
b. $\angle A = 38.6°$; $\angle B = 51.4$; $b = 37.0$
c. $\angle A = 49.2°$; $\angle B = 40.8°$; $a = 6.86$
4. a. $\angle B = 58°$; $c = 69.8$; $b = 59.2$
b. $\angle A = 75°$; $c = 68.0$; $a = 65.7$
c. $\angle A = 70.2°$; $b = 3.35$; $a = 9.31$
6. a. $\angle C = 40°$; $b = 20.58$ **b.** $\angle C = 25.9°$; $a = 48.33$ **c.** $\angle A = 52.0°$; $b = 8.451$

Written Exercises, pages 588–589 **1.** 32.0
3. 9.34 **5.** 23.0 **7.** 28.8° **9.** 24.2°
11. 69.5° or 110.5° **13.** $\frac{10}{9}$ **15.** $\frac{15}{13}$ **17.** $\frac{\sqrt{2}}{2}$

Problems, pages 589–590 **1.** 29.3 cm
3. 49.7 cm **5.** 3280 m **7.** 47.1 m **9.** 8.1°
11. 14.3 km **13.** 13.1 m

Mixed Review Exercises, page 590 **1.** 0.2045
2. −0.9380 **3.** −0.5548 **4.** −1.232
5. 0.2107 **6.** −1.604
7. $(x+1)^2 + (y-4)^2 = 9$ **8.** $x + y = 2$
9. $y = -\frac{1}{8}x^2$

Written Exercises, pages 594–595

1. $\angle A = 100°$, $b = 5.9$, $c = 14.9$
3. $\angle A = 19.7°$, $\angle B = 28.2°$, $\angle C = 132.1°$
5. $a = 20.0$, $\angle B = 25.7°$, $\angle C = 34.3°$
7. $\angle B = 30.7°$, $\angle C = 19.3°$, $c = 12.9$
9. $\angle A = 35.3°$, $\angle C = 104.7°$, $c = 15.1$
11. $\angle C = 80.0°$, $\angle A = 50.0°$, $a = 14.0$; or $\angle C = 100.0°$, $\angle A = 30.0°$, $a = 9.14$ **13.** 2.61
15. 12.0 **17.** 4.33, 3.86 **19.** 80.1, 82.7, 85.1

Problems, pages 595–596 **1.** 1350 km
3. 55.7°, 353 m **5.** 232 km, 40.4°
7. 13.2 m **9.** 81.3° N or 81.3° S **11.** 5.51
13. 60.1 in.

Written Exercises, pages 599–600 **1.** 240
3. 37.1 **5.** 45.3 **7.** 82.5 **9.** 127 **11.** 18
13. 117.3° **15.** 483 cm^2
17. $K^2 = \left(\frac{1}{2}ab \sin C\right)^2 = \frac{1}{4}a^2b^2 \sin^2 C$
19. a. law of cosines **b.** $\sin^2 C + \cos^2 C = 1$
c. Ex. 17 **d.** Add. prop. of eq.
e. $x^2 - y^2 = (x+y)(x-y)$ **f.** Assoc. prop. of add., factoring **g.** see **(e)** **h.** Ex. 18 **i.** Div. prop. of eq., prop. of square roots

Mixed Review Exercises, page 600 **1.** 7.17
2. 29.5 **3.** 127.2° **4.** 23.4