Chapter 7, The Calculator and Solving Triangles

Focus Exercise Answers ODD

Sec. 7.1 Angle Measures in Degrees, Minutes, and Seconds

1. 42.4°
3. 8.757°
5. 20.26°
7. 49° 18′
9. 87° 07′ 30″
11. 135° 22′ 53″

Sec. 7.2 Scientific Calculators and Trigonometric Functions

1. 0.7660
3. -0.7660
5. Error (Undef.)
7. 0.8090
9. 0.4142
11. 0.9749
13. 1.3054
15. -1.1106
17. -1.2208
19. 1.0515
21. $\theta = 89°$
23. $\theta = 49°$
25. $\theta = 140.5°$
27. $\theta = 55°$
29. $\theta = 54°$
31. $\theta = -46°$

Section 7.3 Solving Right Triangles

1. $B = 35°$
$a = 12.9$ in.
$c = 15.7$ in.

3. $B = 19.8°$
$b = 5.3$ cm
$c = 15.5$ cm

5. $A = 55°$
$B = 35°$
$c = 12.2$ in.

7. $x = 67.5$
$y = 35$
$BD = 102.5$

Section 7.4 Applications Involving Right Triangles

1. Mark's boat will be making an 18.5° angle with the shoreline.
3. The distance across the lake is 273 yards.
5. The top of the third floor is 28 feet above the street.
7. The closer rock is 29 feet from the bottom of the cliff.

Section 7.5 Solving Oblique Triangles: Law of Sines

Note: Your answers might vary a little due to rounding errors.

1. $B = 43°$
$b = 8.4$ in.
$c = 12.3$ in.

3. $C = 35°$
$a = 25.8$ in.
$b = 17.7$ in.

5. $B = 48.3°$
$C = 19.7°$
$b = 8.9$ ft

7. $\overline{AB}$ is 12.5 m

9. The distance between the two docks is 215.4 yards.

11. $\overline{AB}$ is 15 in.; $\overline{CB}$ is 17.7 in.

13. The height of the Cypress is about 49 feet.

15. The height of the spruce is 55.7 feet.

Section 7.6 Solving Oblique Triangles: Law of Cosines

Note: Your answers might vary a little due to rounding errors.

1. $A = 45.7°$
$B = 35.3°$
$c = 29$ in.

3. $A = 132.8°$
$C = 15.2°$
$b = 10.1$ yd

5. $A = 70°$
$B = 48.7°$
$C = 61.3°$

7. $A = 29.6°$
$B = 130°$
$C = 20.4°$

9. $AD = 8.6$ in.

11. The distance between the two docks is 108.3 yards.

13. **a)** Civic Avenue will be about 3.7 miles long.

b) The angle between Civic Avenue and Baker Street will be about 30.1°.

Section 7.7 Solving Oblique Triangles: The Ambiguous Case

Note: Your answers might vary a little due to rounding errors.

1. $h \approx 2.1$, and $a < h$, so there is no triangle.

3. $h \approx 11.60074$, which is very close to $a = 11.6$; this is close enough to say $h = a$, and it is safe to assume that B is a right angle: $B = 90°$; $C = 25°$; and $c \approx 5.4$ ft.

5. A is obtuse, and $a > b$, so there is one triangle: $B \approx 36.6°$; $C = 13.4°$; and $c \approx 2.7$ ft.

7. $h \approx 12.40011$, which is very close to $a = 12.4$; this is close enough to say $h = a$, and it is safe to assume that B is a right angle: $B = 90°$; $C = 58°$; and $c \approx 19.8$ ft.

9. $h \approx 11.03$ and $h < a < b$, so there are two triangles:

Δ_1: $B_1 \approx 55.4°$; $C_1 \approx 79.6°$; and $c_1 \approx 18.6$ cm.

Δ_2: $B_2 \approx 124.6°$; $C_2 \approx 10.4°$; and $c_2 \approx 3.4$ cm.