

Chapter 7, The Calculator and Solving Triangles

ODD Focus Exercise Answers

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

For # 1 and 2, answers for only (a), (c), and (e) are shown.

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|----|-------------------|------------------------|---------------------------|
| 1. | a) 42.4° | c) 8.757° | e) 20.26° |
| 2. | a) $49^\circ 18'$ | c) $87^\circ 07' 30''$ | e) $135^\circ 22' 52.5''$ |

Sec. 7.2 Scientific Calculators and Trigonometric Functions *(All answers are shown.)*

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|---------------------------|---------------------------|----------------------------|--------------------------|
| 1. 0.5 | 2. 1 | 3. 1 | 4. -0.5 |
| 5. 0 | 6. Error (Undefined) | 7. 0.5 | 8. 0 |
| 9. 1 | 10. 0 | 11. 1 | 12. Error (Undefined) |
| 13. 2 | 14. 1.4142 | 15. -1 | 16. Error (Undefined) |
| 17. 2.1301 | 18. -5.6713 | 19. 1.5557 | 20. 2 |
| 21. $\theta = 72.4^\circ$ | 22. $\theta = 79.2^\circ$ | 23. $\theta = 60^\circ$ | 24. $\theta = -30^\circ$ |
| 25. $\theta = 120^\circ$ | 26. $\theta = 49.1^\circ$ | 27. $\theta = 126.9^\circ$ | 28. $\theta = -45^\circ$ |
| 29. $\theta = -78^\circ$ | 30. $\theta = 17.6^\circ$ | 31. $\theta = 75^\circ$ | 32. $\theta = 70^\circ$ |
| 33. $\theta = 40.9^\circ$ | 34. $\theta = -40^\circ$ | 35. $\theta = 146.7^\circ$ | |

Section 7.3 Solving Right Triangles

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|---|--|---|---------------------------------------|
| 1. $B = 35^\circ$
$a = 12.9$ in.
$c = 15.7$ in. | 3. $B = 19.8^\circ$
$b = 5.3$ cm
$c = 15.5$ cm | 5. $A = 55^\circ$
$B = 35^\circ$
$c = 12.2$ in. | 7. $x = 68$
$y = 35$
$BD = 103$ |
|---|--|---|---------------------------------------|

Section 7.4 Applications Involving Right Triangles

- Mark's boat will be making an 18.5° angle with the shoreline.
- The distance across the lake is 273 yards.
- The top of the third floor is 28 feet above the street.
- 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. $B \approx 43^\circ$
 $b \approx 8.4$ in.
 $c \approx 12.3$ in.
3. $C \approx 35^\circ$
 $a \approx 25.8$ in.
 $b \approx 17.7$ in.
5. $B \approx 48.3^\circ$
 $C \approx 19.7^\circ$
 $b \approx 8.9$ ft
7. $m\overline{AB} \approx 12.2$ m
9. The distance between the two docks is 108.3 yards.
11. $m\overline{AB} \approx 15$ in.; $m\overline{CB} \approx 17.7$ in.
13. The height of the Cypress is about 49 feet.
15. The height of the spruce is about 55.7 feet.

Section 7.6 Solving Oblique Triangles: Law of Cosines

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

1. $A \approx 45.6^\circ$
 $B \approx 35.3^\circ$
 $c \approx 29$ in.
3. $A \approx 132.8^\circ$
 $C \approx 15.2^\circ$
 $b \approx 10.1$ yd
5. $A \approx 70^\circ$
 $B \approx 48.7^\circ$
 $C \approx 61.3^\circ$
7. $A \approx 29.6^\circ$
 $B \approx 130^\circ$
 $C \approx 20.4^\circ$
9. The measure of the longest side is about 8.6 cm.
11. The distance between the two docks is about 108.3 yards.
13. a) Civic Avenue will be about 3.7 miles long. b) $m\angle A$ will be about 29.7° .

Section 7.7 Solving Oblique Triangles: Law of Cosines

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. $h \approx 6.73$ and $h < a$. Also, $a \geq b$, which means $\angle B$ is acute (because $B < A$), so there is only one triangle: $B \approx 46.4^\circ$; $C \approx 72.6^\circ$; and $c \approx 10.1$ m.
5. A is obtuse, and $a < b$, so there is no triangle.
7. A is obtuse, and $a > b$, so there is one triangle: $B \approx 36.6^\circ$; $C = 13.4^\circ$; and $c \approx 2.7$ ft.
9. $h \approx 12.40011$, 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: $B = 90^\circ$; $C = 58^\circ$; and $c \approx 26.5$ ft.