Chapter Practice

Chapter 14

For Exercises 1–8, choose the correct letter.

1. Which of the following are the solutions of $-2 \sin \theta = 1$ in the interval from 0 to 2π?

A $\theta = 3.66, 5.76$

B $\theta = 3, 5$

C $\theta = 0, 2p$

D $\theta = -4, -6$

E none of the above

2. Two airplanes leave the same airport at 2 P.M. One plane flies northwest at 600 mi/h and the other due south at 700 mi/h. Which of the following distances is how far apart the planes are at 4 P.M.?

A 600 mi

B 700 mi

C 1200 mi

D 1300 mi

E 2400 mi

3. In right triangle ABC, $\cos A = \frac{3}{5}$. What is $\tan A$?

A $\frac{4}{3}$ **B** $\frac{3}{4}$

C $\frac{4}{5}$ **D** $\frac{5}{4}$

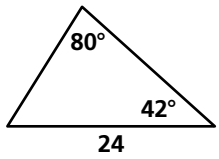
4. Simplify $\frac{\sec^2 x - \tan^2 x}{\sin x}$.

A $\csc x$ **B** $\sec x$

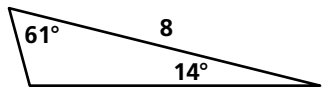
C $\cos x$ **D** not here

5. The Law of Sines cannot be used with one of these triangles. Which one?

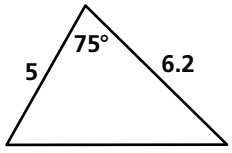
A



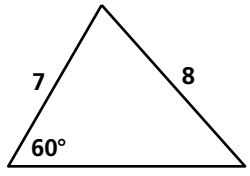
B



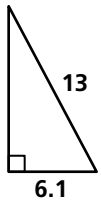
C



D



E



6. Compare the values in Column A and Column B. Choose the best answer.

Column A	Column B
the angle measure $\sin^{-1}(0.6)$	the angle measure $\tan^{-1}(0.8)$

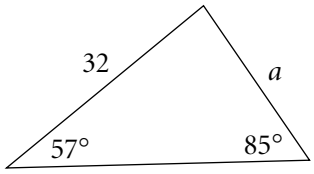
A The value in Column A is greater.

B The value in Column B is greater.

C The two values are equal.

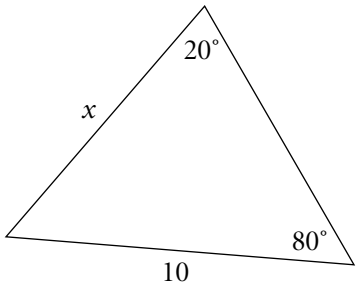
D The relationship cannot be determined on the basis of the information supplied.

7. Which of the following is the measure of side a for this triangle? Round your answer to the nearest whole number.



A 4 **B** 21
C 27 **D** 151

8. Which of the following is the measure of side x in this triangle? Round your answer to the nearest whole number.



A 40 **B** 30
C 29 **D** none of these

For Exercises 9–19, write your answer.

9. Use the Law of Sines to find $m\angle A$ if $a = 4$, $b = 6$, and $m\angle B = 120°$. Round your answer to the nearest hundredth.

10. Simplify $\frac{\cos^2 x}{1 - \sin x}$.

11. Use angle identities to find the exact value of $\cos 225°$.

12. Show that $\cos (A + B) = \cos A + \cos B$ is not an identity by finding values for A and B for which the equation is false.

13. Open-Ended Verify the identity $\cot^2 x - \cos^2 x = \cot^2 x \cdot \cos^2 x$.

14. In right triangle ABC, $\cos A = \frac{1}{3}$. The longest side of the triangle has length 15 units. Find the length of the shortest side.

15. Find $m\angle A$ if $a = 14$, $b = 8$, and $c = 12$. Round your answer to the nearest tenth.

16. Find the value of $\cos 70° \cos 20° - \sin 20° \sin 70°$.

17. Writing In a right triangle you know the sine of one angle is $\frac{4}{5}$. Explain how to find the cosine and tangent of this angle.

18. Prove that for all θ, $(\cos \theta)^2 + (\sin \theta)^2 = 1$

19. Prove that for all θ, $(1 + (\tan \theta)^2)(\cos \theta)^2 = 1$