

**CHAPTER 2, FORM F
TRIGONOMETRY**

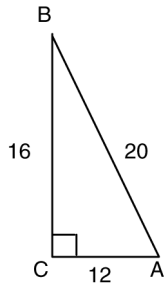
NAME _____
DATE _____

Choose the best answer.

For Problems 1-10, do not use a calculator.

1. What is the cofunction of $\sec 35^\circ 26'$? 1. _____
a. $\csc 65^\circ 26'$ **b.** $\cos 125^\circ 26'$
c. $\cos 54^\circ 34'$ **d.** $\csc 54^\circ 34'$

2. Find $\sin B$, $\cos B$, and $\tan B$ for the figure below. 2. _____



- a.** $\sin B = \frac{3}{5}$, $\cos B = \frac{4}{5}$, $\tan B = \frac{3}{4}$ **b.** $\sin B = \frac{4}{5}$, $\cos B = \frac{3}{5}$, $\tan B = \frac{3}{4}$
c. $\sin B = \frac{4}{5}$, $\cos B = \frac{3}{5}$, $\tan B = \frac{4}{5}$ **d.** $\sin B = \frac{5}{3}$, $\cos B = \frac{4}{3}$, $\tan B = \frac{4}{3}$

Solve each equation. Assume that all angles are acute angles.

3. $\csc(\beta) = \sec(3\beta)$ 3. _____
a. $\beta = 15^\circ$ **b.** $\beta = 22.5^\circ$
c. $\beta = 45^\circ$ **d.** $\beta = 60^\circ$

4. $\cos(\theta + 15^\circ) = \sin(2\theta + 30^\circ)$ 4. _____
a. $\theta = 12^\circ$ **b.** $\theta = 15^\circ$
c. $\theta = 30^\circ$ **d.** $\theta = 45^\circ$

5. Which of the following has the same absolute value as $\csc 212^\circ 43'$? 5. _____
a. $\csc 12^\circ 17'$ **b.** $\csc 122^\circ 43'$
c. $\csc 147^\circ 17'$ **d.** None of these

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Evaluate each expression. Give exact values. Rationalize denominators when applicable.

6. $\sec 690^\circ$

a. $\frac{1}{2}$

b. $-\frac{\sqrt{3}}{3}$

c. -2

d. $\frac{2\sqrt{3}}{3}$

6. _____

7. $\sec^2 135^\circ + 2 \sin 210^\circ$

a. 1

b. $-1 - \sqrt{2}$

c. $\frac{2\sqrt{2}-1}{2}$

d. $-\frac{3\sqrt{2}}{2}$

7. _____

8. $4(\sin 30^\circ)(\sec 135^\circ) + \tan^2 225^\circ$

a. $\frac{1+2\sqrt{6}}{3}$

b. $\frac{3-2\sqrt{2}}{2}$

c. $1-2\sqrt{2}$

d. $-1+2\sqrt{2}$

8. _____

9. Determine which of the following is *not* true.

a. $\csc 22^\circ < \csc 72^\circ$

b. $\sec 45^\circ < \sec 65^\circ$

c. $\tan 18^\circ < \tan 73^\circ$

d. $\cos 29^\circ < \cos 24^\circ$

9. _____

10. Determine which of the following is true.

a. $\sin 45^\circ + \cos 45^\circ = \tan 45^\circ$

b. $\sec 45^\circ + \csc 45^\circ = 4 \sin 45^\circ$

c. $\cos 30^\circ + \tan 30^\circ = \sin 30^\circ$

d. $\tan 60^\circ + \tan 30^\circ = \tan 90^\circ$

10. _____

A calculator may be used for Problems 11-20.

Find a decimal approximation for each.

11. $\tan 753^\circ 24'$

a. $-.6594$

b. $.3406$

c. $.2133$

d. $.6594$

11. _____

12. $\csc 219.44^\circ$

a. $-.6353$

b. $.8223$

c. -1.295

d. -1.574

12. _____

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Find an angle in the interval $[0^\circ, 90^\circ)$ that satisfies each statement. Give answers to the nearest tenth of a degree.

13. $\sec \theta = 1.2938$

- a. 24.5° b. 39.4°
 c. 50.6° d. 72.3°

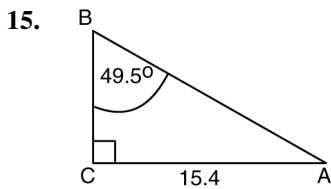
13. _____

14. $\cot A = 6.3847$

- a. 8.9° b. 22.3°
 c. 42.8° d. 90.1°

14. _____

Solve each of the following right triangles. The right angle is at C.



15. _____

- a. $a = 20.2, c = 13.7, A = 41.4^\circ$
 b. $a = 18.1, c = 23.8, A = 54.6^\circ$
 c. $a = 13.2, c = 20.3, A = 40.5^\circ$
 d. $a = 13.1, c = 28.5, A = 51.4^\circ$

16. $a = 4.6, c = 8.7$

- a. $b = 9.8, A = 43.2^\circ, B = 46.8^\circ$
 b. $b = 4.1, A = 61.9^\circ, B = 28.1^\circ$
 c. $b = 2.3, A = 25.7^\circ, B = 64.3^\circ$
 d. $b = 7.4, A = 31.9^\circ, B = 58.1^\circ$

16. _____

17. $B = 68^\circ, b = 5.6$

- a. $a = 2.3, c = 6.0, A = 22^\circ$
 b. $a = 14.9, c = 13.8, A = 68^\circ$
 c. $a = 9.3, c = 14.9, A = 32^\circ$
 d. $a = 7.8, c = 13.2, A = 74^\circ$

17. _____

18. The observer deck of a ship is located at the origin of a coordinate system. Find the bearing of a buoy located at the point $(8, -8)$.

- a. 45° b. 135°
 c. 225° d. 315°

18. _____

19. A scientist is at a spot that has an angle of elevation of 22.7° to the top of the 315-foot-tall observatory. How far is the scientist from the base of the observatory?

- a. 341 ft b. 753 ft
 c. 816 ft d. 1003 ft

19. _____

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- 20.** A sailboat travels 6 miles on a bearing of 48° , and then it travels on a bearing of 138° for 22 miles. How far is the sailboat from its starting position?
- a.** 12 mi **b.** 15 mi
c. 20 mi **d.** 23 mi

20. _____