

Chapter 4.1-4.4 Practice Test

Name _____

Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

The given angle is in standard position. Determine the quadrant in which the angle lies.

1) -359° 1) _____

2) -110° 2) _____

Find the radian measure of the central angle of a circle of radius r that intercepts an arc of length s .

3) $r = 3$ inches, $s = 12$ inches 3) _____

4) $r = \frac{2}{5}$ feet, $s = 10$ feet 4) _____

Convert the angle in degrees to radians. Express answer as a multiple of π .

5) 160° 5) _____

Convert the angle in radians to degrees.

6) $-\frac{13}{6}\pi$ 6) _____

Convert the angle in degrees to radians. Round to two decimal places.

7) 86° 7) _____

Convert the angle in radians to degrees. Round to two decimal places.

8) 4 radians

8) _____

Find a positive angle less than 360° or 2π that is coterminal with the given angle.

9) 473°

9) _____

10) $\frac{13\pi}{6}$

10) _____

Find the length of the arc on a circle of radius r intercepted by a central angle θ . Round answer to two decimal places.

11) $r = 6$ feet, $\theta = 70^\circ$

11) _____

The point $P(x, y)$ on the unit circle that corresponds to a real number t is given. Find the value of the indicated trigonometric function at t .

12) $\left(\frac{2}{9}, \frac{\sqrt{77}}{9}\right)$ Find $\tan t$.

12) _____

13) $\left(\frac{\sqrt{7}}{4}, \frac{3}{4}\right)$ Find $\sec t$.

13) _____

14) $\left(\frac{5}{8}, -\frac{\sqrt{39}}{8}\right)$ Find $\csc t$.

14) _____

Use the unit circle to find the value of the trigonometric function.

15) $\tan \frac{7\pi}{6}$

15) _____

Use even and odd properties of the trigonometric functions to find the exact value of the expression.

16) $\cos\left(-\frac{\pi}{2}\right)$ 16) _____

17) $\sec\left(-\frac{\pi}{3}\right)$ 17) _____

Sin t and cos t are given. Use identities to find the indicated value. Where necessary, rationalize denominators.

18) $\sin t = -\frac{2}{7}$, $\cos t = \frac{3\sqrt{5}}{7}$. Find tan t. 18) _____

$0 \leq t < \frac{\pi}{2}$ and sin t is given. Use the Pythagorean identity $\sin^2 t + \cos^2 t = 1$ to find cos t.

19) $\sin t = \frac{1}{4}$ 19) _____

Use an identity to find the value of the expression. Do not use a calculator.

20) $\tan 3.8 \cot 3.8$ 20) _____

Use periodic properties of the trigonometric functions to find the exact value of the expression.

21) $\cos \frac{8\pi}{3}$ 21) _____

22) $\sin \frac{10\pi}{3}$ 22) _____

Use a calculator to find the value of the trigonometric function to four decimal places.

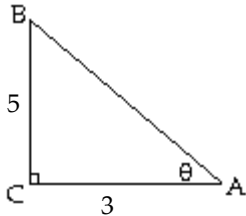
23) $\sec 7$

23) _____

Use the Pythagorean Theorem to find the length of the missing side. Then find the indicated trigonometric function of the given angle. Give an exact answer with a rational denominator.

24) Find $\cos \theta$.

24) _____



Find a cofunction with the same value as the given expression.

25) $\cos 28^\circ$

25) _____

26) $\tan \frac{\pi}{19}$

26) _____

Solve the problem.

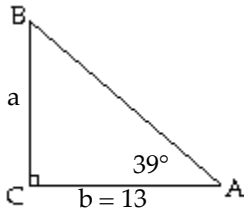
27) A building 300 feet tall casts a 50 foot long shadow. If a person looks down from the top of the building, what is the measure of the angle between the end of the shadow and the vertical side of the building (to the nearest degree)? (Assume the person's eyes are level with the top of the building.)

27) _____

Find the measure of the side of the right triangle whose length is designated by a lowercase letter. Round your answer to the nearest whole number.

28)

28) _____



Use a calculator to find the value of the acute angle θ in radians, rounded to three decimal places.

29) $\tan \theta = 13.2894$

29) _____

A point on the terminal side of angle θ is given. Find the exact value of the indicated trigonometric function of θ .

30) (21, 28) Find $\cos \theta$.

30) _____

31) (9, 12) Find $\csc \theta$.

31) _____

Let θ be an angle in standard position. Name the quadrant in which the angle θ lies.

32) $\cos \theta > 0$, $\csc \theta < 0$

32) _____

Find the exact value of the indicated trigonometric function of θ .

33) $\cos \theta = \frac{4}{7}$, $\tan \theta < 0$ Find $\sin \theta$.

33) _____

34) $\csc \theta = -\frac{9}{2}$, θ in quadrant III Find $\cot \theta$.

34) _____

Find the reference angle for the given angle.

35) 30°

35) _____

36) 132°

36) _____

37) -412°

37) _____

38) $\frac{7\pi}{6}$

38) _____

39) $\frac{-17\pi}{4}$

39) _____

Use reference angles to find the exact value of the expression. Do not use a calculator.

40) $\tan \frac{-5\pi}{6}$

40) _____

41) $\tan \frac{5\pi}{4}$

41) _____

42) $\csc 600^\circ$

42) _____

43) $\cot 750^\circ$

43) _____

Answer Key

Testname: CH 4 PRACTICE

- 1) Quadrant I
- 2) Quadrant III
- 3) 4 radians
- 4) 25 radians
- 5) $\frac{8\pi}{9}$ radians
- 6) -390°
- 7) 1.5 radians
- 8) 229.18°
- 9) 113°
- 10) $\frac{\pi}{6}$
- 11) 7.33 feet
- 12) $\frac{\sqrt{77}}{2}$
- 13) $\frac{4\sqrt{7}}{7}$
- 14) $-\frac{8\sqrt{39}}{39}$
- 15) $\sqrt{3}$
- 16) 0
- 17) 2
- 18) $\frac{-2\sqrt{5}}{15}$
- 19) $\frac{\sqrt{15}}{4}$
- 20) 1
- 21) $-\frac{1}{2}$
- 22) $-\frac{\sqrt{3}}{2}$
- 23) 1.3264
- 24) $\frac{3\sqrt{34}}{34}$
- 25) $\sin 62^\circ$
- 26) $\cot \frac{17\pi}{38}$
- 27) 9°
- 28) $a = 11$ cm
- 29) 1.496 radians
- 30) $\frac{3}{5}$
- 31) $\frac{5}{4}$
- 32) quadrant IV

Answer Key

Testname: CH 4 PRACTICE

$$33) -\frac{\sqrt{33}}{7}$$

$$34) \frac{\sqrt{77}}{2}$$

$$35) 30^\circ$$

$$36) 48^\circ$$

$$37) 52^\circ$$

$$38) \frac{\pi}{6}$$

$$39) \frac{\pi}{4}$$

$$40) \frac{\sqrt{3}}{3}$$

$$41) 1$$

$$42) -\frac{2\sqrt{3}}{3}$$

$$43) \sqrt{3}$$