

Practice Final Exam

Name _____

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

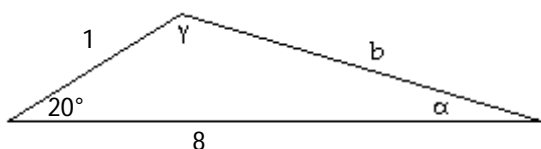
Complete the identity.

1) $\tan(\pi - \theta) = ?$

1) _____

Find the area of the triangle. If necessary, round the answer to two decimal places.

2)



2) _____

Find the exact value of the expression.

3) $\cot\left(\sin^{-1}\frac{\sqrt{2}}{2}\right)$

3) _____

4) $\sin\left[2\cos^{-1}\left(-\frac{3}{5}\right)\right]$

4) _____

5) $\sin\frac{\pi}{12}$

5) _____

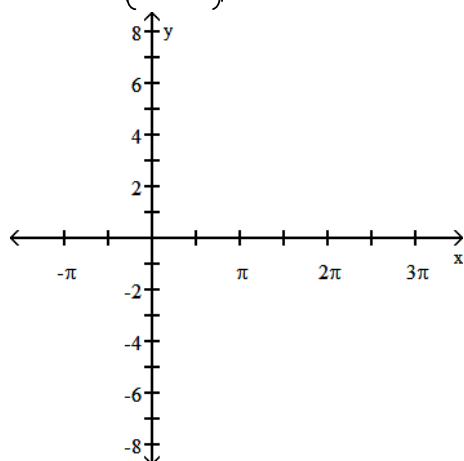
Find the exact value of the expression. Do not use a calculator.

6) $\sin^{-1}\left[\sin\left(\frac{3\pi}{5}\right)\right]$

6) _____

Graph the function. Show at least one period.

7) $y = -3 \sin\left(5x + \frac{\pi}{2}\right)$



7) _____

In the problem, $\sin \theta$ and $\cos \theta$ are given. Find the exact value of the indicated trigonometric function.

8) $\sin \theta = \frac{2\sqrt{2}}{3}$, $\cos \theta = \frac{1}{3}$ Find $\csc \theta$.

8) _____

In the problem, t is a real number and $P = (x, y)$ is the point on the unit circle that corresponds to t . Find the exact value of the indicated trigonometric function of t .

9) $\left(\frac{3}{7}, -\frac{2\sqrt{10}}{7}\right)$ Find $\csc t$.

9) _____

10) $\left(-\frac{\sqrt{65}}{9}, -\frac{4}{9}\right)$ Find $\sin t$.

10) _____

Simplify the expression.

11) $\frac{\cos \theta}{1 + \sin \theta} + \tan \theta$

11) _____

Simplify the trigonometric expression by following the indicated direction.

12) Multiply and simplify: $\frac{(\cot \theta + 1)(\cot \theta + 1) - \csc^2 \theta}{\cot \theta}$

12) _____

Solve the equation on the interval $0 \leq \theta < 2\pi$.

13) $\tan(2\theta) - \tan \theta = 0$

13) _____

14) $\sin^2 \theta - \cos^2 \theta = 0$

14) _____

15) $\sin(2\theta) + \sin \theta = 0$

15) _____

Solve the equation. Express irrational answers in exact form and as a decimal rounded to 3 decimal places.

16) $\left(\frac{9}{7}\right)^x = 5^{1-x}$

16) _____

17) $\ln x + \ln(x+6) = 2$

17) _____

Solve the problem.

18) If $\sin \theta = \frac{1}{8}$, find $\csc \theta$.

18) _____

19) An airplane is sighted at the same time by two ground observers who are 5 miles apart and both directly west of the airplane. They report the angles of elevation as 15° and 25° . How high is the airplane?

19) _____

Solve the problem. Leave your answer in polar form.

20) $z = 10(\cos 30^\circ + i \sin 30^\circ)$
 $w = 5(\cos 10^\circ + i \sin 10^\circ)$
Find zw .

20) _____

21) $z = 5(\cos 200^\circ + i \sin 200^\circ)$
 $w = 4(\cos 50^\circ + i \sin 50^\circ)$
 Find $\frac{z}{w}$.

21) _____

Use the given zero to find the remaining zeros of the function.

22) $f(x) = x^4 - 12x^2 - 64$; zero: $-2i$

22) _____

Use the information given about the angle θ , $0 \leq \theta \leq 2\pi$, to find the exact value of the indicated trigonometric function.

23) $\sin \theta = \frac{5}{13}$, $0 < \theta < \frac{\pi}{2}$ Find $\cos (2\theta)$.

23) _____

Write the complex number in polar form. Express the argument in degrees, rounded to the nearest tenth, if necessary.

24) $1 - \sqrt{3}i$

24) _____

Write the expression in the standard form $a + bi$.

25) $[2(\cos 15^\circ + i \sin 15^\circ)]^3$

25) _____