College Trigonometry MAC 1114

FINAL EXAM Name_____

Review questions

Convert the angle to degrees, minutes, and seconds.

1) 105.41°

Convert the radian measure to degrees, given to the nearest minute.

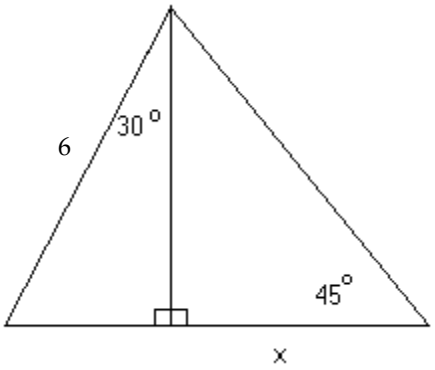
2) 6.41

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

3) (–20, 48) Find sin θ.

Solve the problem.

4) Find the exact value of x in the figure.

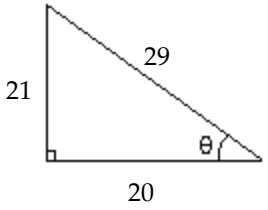


Solve the problem.

5) A building 180 feet tall casts a 60 foot long shadow. If a person stands at the end of the shadow and looks up tc the top of the building, what is the angle of the person's eyes to the top of the building (to the nearest hundredth of a degree)? (Assume the person's eyes are 6 feet above ground level.)

Use the figure to find the exact value of the trigonometric function.

6) Find sin 2θ.



Use the fundamental identities to find the value of the trigonometric function.

7) Find sin θ if $\cos\theta = \frac{2}{3}$ and θ is in quadrant IV.

Write the expression in terms of sines and/or cosines, and then simplify.

8) $\sin^2 x + \sin x - 1 + \cos^2 x$

Use an identity to write the expression as a single trigonometric function or as a single number.

9) $\cos^2 4x - \sin^2 4x$

Write the product as a sum or difference of trigonometric functions.

10) $2 \cos 6x \cos 3x$

Use identities to find the indicated value for each angle measure.

11) $\sin \theta = \frac{5}{13}, \quad \cos \theta > 0$ Find $\cos(2\theta)$.

12) $\cos 2\theta = -\frac{7}{9}$ and $\frac{\pi}{2} < \theta < \pi$ Find $\sin \theta$.

Give the rectangular coordinates for the point.

13) $(10, 225°)$

The rectangular coordinates of a point are given. Express the point in polar coordinates with $r \geq 0$ and $0° \leq \theta < 360°$.

14) $(-\sqrt{5}, -\sqrt{5})$

Convert the rectangular coordinates to polar coordinates, using radian measure for the angle.

15) $(8, -8)$

For the given polar equation, write an equivalent rectangular equation.

16) $r = 10 \sin \theta$

1) $105°24'36''$
2) $367°16'$
3) $\frac{12}{13}$
4) $3\sqrt{3}$
5) $70.97°$
6) $\frac{840}{841}$
7) $-\frac{\sqrt{5}}{3}$
8) $\sin x$
9) $\cos 8x$
10) $\cos 9x + \cos 3x$
11) $\frac{119}{169}$
12) $\sin\theta = \frac{2\sqrt{2}}{3}$
13) $(-5\sqrt{2}, -5\sqrt{2})$
14) $(\sqrt{10}, 225°)$
15) $\left(8\sqrt{2}, \frac{7\pi}{4}\right)$
16) $x^2 + y^2 = 10y$