

This is a take-home test. You may use your notes, the book, etc. This test is due on Tuesday, September 8, 2009 at the beginning of class. **Late tests will not be accepted!** Remember to simplify all of your answers and show your work for credit!

Change the following to radian measure:

1)  $230^\circ$

2)  $80^\circ$

Change the following to degree measure:

3)  $\frac{5\pi}{24}$  radians

4) 5.6 radians

Find the following, if they exist. Round answers to four decimal places.

5)  $\cos 294^\circ$

6)  $\sec 581^\circ$

7)  $\cot 346^\circ$

8)  $\tan 105^\circ$

9)  $\sin 429^\circ$

10) Given a circle having a radius of 20 cm, an angle  $\theta$  intercepts an arc length of 36 cm.

a) Find the angle measure  $\theta$  in radians.

b) Find the angle measure  $\theta$  in degrees.

11) In a circle with a radius of 4.5 feet, how long is an arc associated with a central angle of 130 degrees?

Find the angle measure between  $0^\circ$  and  $360^\circ$  that is coterminal with the given angle measure.

12)  $921^\circ$

13)  $-824^\circ$

14)  $-32^\circ$

15)  $2067^\circ$

Name the two angles between  $0^\circ$  and  $180^\circ$  having the following measures. Round answers to the nearest tenth of a degree.

16)  $\sin A = 0.4$

17)  $\sin B = 0.501$

18)  $\sin N = 0.11$

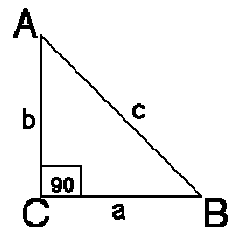
19)  $\sin W = 0.9876$

20) Given the right triangle to the right where  $a = 5.1$  and  $m\angle B = 24^\circ$ , find

a)  $m\angle A$

b) length of side  $b$

c) length of side  $c$



21) Convert  $38^{\circ} 27' 6''$  to decimal degree notation.  
Round your answer to four decimal places.

22) Convert  $85.642^{\circ}$  to degrees, minutes, and seconds. Round to the nearest second.

23) Find the complement of  $46^{\circ} 28' 34''$ .

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25) From a point 130 feet from the base of a tree, the angle of elevation to the top of the tree is  $52.7^{\circ}$ . Find the height of the tree.

26) A driveway has a constant angle of elevation of  $3.4^{\circ}$ . The driveway ends up being 0.12 miles higher on the end than at the beginning. What is the length of the driveway itself?

27) If the distance from a helicopter to a tower is 420 feet and the angle of depression from the helicopter to the tower is  $35.6^{\circ}$ , how far above the ground is the helicopter at that time?

28) A fire is spotted 2.6 miles due south from tower A. Tower B is 1.9 miles due east from tower A. What is the directional angle from tower B to the fire?