

This is a take-home test. You may use your notes, the book, etc. This test is due on Tuesday, March 11, 2008 at class time. Late tests will not be accepted! Remember to simplify all of your answers and show your work!

Change the following to radian measure:

1) 325°

2) 115°

Change the following to degree measure:

3) $\frac{3\pi}{8}$ radians

4) 2.8 radians

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

5) $\sin 597^\circ$

6) $\csc 175^\circ$

7) $\sec 201^\circ$

8) $\tan 129^\circ$

9) $\cot 12^\circ$

Solve for x. Round answers to two decimal places

10) $\tan 45^\circ = \frac{x}{2.1}$

11) $\csc x = 1.985$

12) $\sin 32^\circ = \frac{9.2}{x}$

13) $\sec 158^\circ = \frac{x}{5}$

14) Given a circle having a radius of 18 cm, an angle θ intercepts an arc length of 12 cm.

a) Find the angle measure θ in radians.

b) Find the angle measure θ in degrees.

15) In a circle with a radius of 12.8 feet, how long is an arc associated with a central angle of $\frac{9\pi}{5}$ radians?

Find the angle measure between 0° and 360° that is coterminal with the given angle measure.

16) 835°

17) -534°

18) -954°

19) 1339°

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

20) $\sin B = 0.657$

21) $\sin Q = 0.4$

22) $\sin A = 0.9985$

23) $\sin T = 0.0236$

24) A surveyor is standing 80 feet from the base of a large tree. The surveyor measures the angle of elevation to the top of the tree as 73.5° . How tall is the tree?

25) From a 85-foot observation tower on the shoreline, a Coast Guard officer sights a boat in difficulty. The angle of depression from the sight of the officer to the boat is 7° . How far is the boat from the observation tower on the shoreline?

26) A guy wire attached to the top of a utility pole is 50 feet long and is fastened to the ground 20 feet from the base of the utility pole. What angle does the wire make with the ground?

27) Convert $25^\circ 25' 32''$ to decimal degree notation. Round your answer to four decimal places.

28) Convert 135.325° to degrees, minutes, and seconds. Round to the nearest second.

29) Find the complement of $36^\circ 15' 23''$.

30) Find the supplement of $36^\circ 15' 23''$.