## Mth 114 – Trigonometry – Practice Exam 1 – Part 1

NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the length and difficulty level of the regular exam. To best utilize it as a *practice* exam, give yourself 55 minutes with no distractions. Try to emulate the classroom environment as much as possible. <u>Calculators are NOT ALLOWED on this portion.</u>

- 1. Find the complement and supplement of 75°. Label your answers.
- 2. Find the angle of smallest positive measure coterminal with  $-75^{\circ}$ .
- 3. Use the given figure to find the measures of the numbered angles. (Assume lines *m* and *n* are parallel.)



4. A surveyor is attempting to measure the width of a river. He makes the measurements accompanying the figure below. Using similar triangles and the measurements below, find the width *w* of the river. All measurements are given in meters.



5. Find the values of the six trigonometric functions for the angle in standard position having the point (-4, -3) on its terminal side.

6. Suppose the terminal side of an angle in standard position is given by the equation  $y = -x, x \ge 0$ . Sketch the smallest positive such angle  $\theta$  and find the values of the six trigonometric functions of  $\theta$ .

7. Given that  $\sin \theta = \frac{3}{5}$  and  $\theta$  is in quadrant II, find the value of  $\tan \theta$ .

8. Given triangle ABC, find exact values for  $\sin A$ ,  $\cos A$ , and  $\tan A$ .



9. Find one solution to the equation  $\cos \theta = \sin 2\theta$ . (Assume  $\theta$  is acute.)

10. Find all values of  $\theta$ , if  $\theta$  is in the interval  $[0^\circ, 360^\circ)$  and  $\tan \theta = -\sqrt{3}$ .

- 11. Find the exact value for each expression.
  - a. cot 45°

b. sec 225°

c. cos(-150°)

d. tan 495°

e.  $\csc(-60^\circ)$ 

## Mth 114 – Trigonometry – Practice Exam 1 – Part II

## **Calculators ARE ALLOWED on this portion.**

- 12. Convert 34° 24' 35" to decimal degrees.
- 13. Convert 59.0854° to degrees, minutes, and seconds.
- 14. In the picture below, Happy is trying to estimate the height of a tree. He stands 20 ft away from the trunk of the tree and makes an angle of 35° when looking at the top of the tree. If Happy is 6 ft tall, approximately how tall is the tree?



15. The bearing from Atlanta to Macon is S 27° E, and the bearing from Macon to Augusta is N 63° E. An automobile traveling at 60 mph needs 1¼ hr to go from Atlanta to Macon and 1¾ to go from Macon to Augusta. Find the distance from Atlanta to Augusta.

16. Happy wants to determine the height of another tree. Unfortunately, he isn't able to walk completely up to the tree. Instead, he measures the angle of elevation from a particular point on the ground to the top of the tree is 36.7°. He then moves back 50 ft. From the second point, the angle of elevation to the top of the tree is 22.2°. Find the height of the tree.

