GPS Pre-Calculus
Introduction to Trigonometry Study Guide (Unit 1)
Standard MA3A2: Students will use the circle to define the trigonometric functions.

Problems 1 – 4
Standard MA3A2a: Define and understand angles measured in degrees and radians, including but not limited to 0°, 30°, 45°, 60°, 90°, their multiples, and equivalences.

1. Convert 1500° to radian measure.

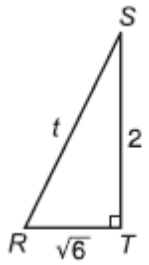
2. Convert -340° to radian measure.

3. Find the reference angle for $-\frac{5\pi}{6}$

4. Find the reference angle for $\frac{19\pi}{12}$

Problems 5 – 8
Standard MA3A2b: Understand and apply the six trigonometric functions as functions of general angles in standard position.

5. Find the six trigonometric functions for $\angle S$.



6. Find the value of the cosecant for $\angle A$ if the tangent of $\angle A$ is $\frac{6}{11}$

7. Your cat is trapped on a tree branch 6.5 meters above the ground. Your ladder is only 6.7 meters long. If you place the ladder's tip on the branch, what angle will the ladder make with the ground?

8. The angle of elevation from the end of a shadow cast by a building to the top of the building is 41˚, and the distance is 145 feet. Find the height of the building.

Problems 9 – 12

Standard MA3A2c: Find values of trigonometric functions using points on the terminal sides of angles in the standard position.

9. Find the sine for angle θ in standard position if the point at $(12,5)$ lies on its terminal side.

10. Find the secant for angle θ in standard position if the point at $\left(6,\sqrt{13}\right)$ lies on its terminal side.

11. Suppose θ is an angle in standard position whose terminal side lies in Quadrant II. If $\cos\theta = -\frac{3}{5}$, find the value of $\cot\theta$.

12. Suppose θ is an angle in standard position whose terminal side lies in Quadrant IV. If $\cot\theta = -\frac{3}{2}$, find the value of $\cos\theta$.

Problems 13 – 16

Standard MA3A2e: Find values of trigonometric functions using the unit circle.

13. Find the exact value of $\csc(-\pi)$.

14. Find the exact value of $\sin 150°$

15. Find the exact value of $\sec\frac{3\pi}{4}$.

16. Find the exact value of $\cos\frac{7\pi}{3}$