

## MTH 164 Introduction to Trigonometry – Course Objectives – REVISED 5/8/2009

1. Define radians as a measure of angle rotation.
2. Draw an approximate diagram in standard position on coordinate axes of an angle given in radians.
3. Find positive and negative coterminal angles for an angle in standard position.
4. State the six trigonometric ratios (in terms of  $x$ ,  $y$ , and  $r$ ) for an angle in standard position whose terminal side passes through a point  $(x,y)$  on a circle of radius  $r$ .
5. Using points on a unit circle, find the exact values of the six trigonometric ratios of quadrantal angles ( $0$ ,  $\pi/2$ ,  $\pi$ ,  $3\pi/2$ ,  $2\pi$ ) and special angles ( $\pi/4$ ,  $\pi/6$ ,  $\pi/3$ ).
6. Determine whether a trigonometric ratio of an angle in standard position is positive or negative.
7. Find the reference angle for an angle in standard position.
8. Find the exact value of a trigonometric ratio of an angle whose reference angle is a special angle.
9. Use a calculator to find the approximate value of a trigonometric ratio of an angle given in radians.
10. Draw the graph and state the domain, range,  $x$ -intercepts, and  $y$ -intercept of  $y = \sin x$  and  $y = \cos x$ .
11. Use a calculator to draw graphs of the form  $y = a \sin x$  and  $y = a \cos x$ . Determine amplitude and its effect on the graph.
12. Draw the graph and state the domain, range, *and* asymptotes of  $y = \tan x$  and  $y = \cot x$ .
13. Use the graphs of  $y = \sin x$  and  $y = \cos x$  to draw the graphs of  $y = \csc x$  and  $y = \sec x$ . State the domain, range, and asymptotes.
14. Use reciprocal and quotient identities, and the Pythagorean identity  $\sin^2 x + \cos^2 x = 1$  to establish new trigonometric identities.
15. Solve first degree trigonometric equations for exact values of the variable as well as for approximate values.
16. Convert the measure of an angle given in radians to decimal degrees, and convert the measure of an angle given in decimal degrees to radians.
17. Convert the measure of an angle given in decimal degrees to degrees, minutes, seconds (DMS) form, and convert the measure of an angle given in DMS form to decimal degrees.
18. Use a calculator to find the approximate value of a trigonometric ratio of an angle given in decimal degrees or DMS form.