Exam 8 Technical Math I Fall 2009 /100

Name _____ **(1 Point!)**

Each Problem is worth 11 points.

Problems 1 through 16 are each worth 1 point. Problems 17, 18, and 19 are each worth 2 points. Problem 20 is worth 3 points.

1. Convert the following angle from degree measure to both radian measure and the number of revolutions: (4 decimal places)

	Radians	Revolutions
$45°$	= _____	= _____

2. Convert the following angles from radian measure to both degree measure and the number of revolutions: (4 decimal places)

	Decimal Degrees	Deg. Min. Sec.	Revolutions
$\frac{\pi}{8}$	= _____	= _____	= _____

3. Given that $\tan\theta = 0.8000$ and $\cos\theta$ is negative , determine the following:

	Radians (4 places)	Decimal Degrees (4 places)	Deg. Min. Sec. (° ′ ″)
θ	= _____	= _____	= _____

$\cos\theta$	= _____	$\sin\theta$	= _____	$\tan\theta$	= _____

4. To three significant digits find the arclength subtended by an angle of $64.5°$ and a radius of 15.0 cm .

Solve for the missing sides (3 significant digits) and angles (decimal degrees, 3 places) in the following triangles. Include **all possible** solutions. The notation is that the angle whose measure is specified by the capital letter is opposite the side whose length is specified by the lower case letter.

5. $a = 13.50$ in $b = 9.80$ in $c = 12.00$ in

$A =$ _____ $B =$ _____ $C =$ _____

6. $a = 15.0$ in $b = 12.0$ in $c =$ _____

$A = 25.00°$ $B =$ _____ $C =$ _____

7. $a = 12.0\,\text{in}$ $b = 15.0\,\text{in}$ $c =$ _____

$A = 25.00°$ $B =$ _____ $C =$ _____

8. A plane takes off with a heading of N18°E and a ground speed of 330 mph. At 7,500 ft, after encountering strong winds, the plane's `true course' becomes N16°E with a ground speed of 338 mph.
a) What is the wind speed?

b) What is the wind's direction?

Graph the following trigonometric functions for $-2\pi \leq x \leq 2\pi$ and supply the requested information.

9. $y = -2\sin(x)$ Period = _____ Amplitude = _____