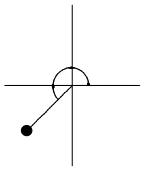
MS 101 - SAMPLE TEST - Sections 6.1 - 6.4

01. (04 pts) Use the angle pictured below.

a) Estimate the number of degrees in the angle. b) What is the quadrant in which the angle lies?



02. (06 pts) State the quadrant where each angle lies:

a) $\theta = 295°$ b) $\theta = -145°$ c) $\theta = \frac{13\pi}{2}$ radians d) $\theta = \frac{5\pi}{4}$ radians e) $\theta = 2$ radians.

03. (04 pts) a) Convert the angle $\frac{7\pi}{3}$ to degrees.

b) Convert the angle 315° degrees to radians, preserving π.

04. (04 pts) Convert the angle 235°32'35'' to decimal degrees. **Degrees** = _____

05. (04 pts) Convert the angle 36.2575° to D°M'S" format. **D°M'S"** = _____

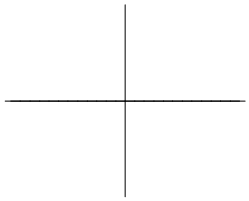
06. (04 pts) An angle θ cuts an arc length of 10 from a circle of radius 40.

a) Draw a picture depicting this angle and circle.

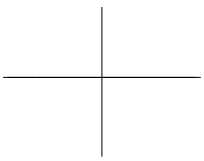
b) What is the radian measure of θ? θ = _____

07. (04 pts) Suppose Upville is due north of Downville . The latitude of Upville is 50° North and the latitude of Downville is 30° North. How many miles is it between the cities? (The radius of the earth is 4000 miles)

08. (04 pts) Sketch the angle $\frac{5\pi}{3}$ in standard position. Use an arrow to indicate the amount and direction of rotation.



09. (04 pts) Sketch the angle $\frac{7\pi}{4}$ in standard position. Use an arrow to indicate the amount and direction of rotation.



10. (04 pts) One leg of a right triangle has length 8 and the hypotenuse has length 12. Let θ be the angle opposite the leg of length 8. Find the tan(θ).

11. (04 pts) A right triangle contains an angle of 25°. The side opposite the angle of 25° has length 10. How long is the hypotenuse of the triangle?

12. (04 pts) A right triangle contains an angle of 55°. The hypotenuse has length 10. How long is the side adjacent the angle of 55°?

13. (04 pts) Use your calculator to find the following(round to 3 decimals.):

a) sin(135°) = ____ csc(135°) = ____

b) cos(214°) = ____ sec(214°) = ____

c) tan(735°) = ____ cot(735°) = ____

14. (06 pts) The point (-6,12) lies on the terminal ray of an angle θ.

a) What is the distance from the given point to the Origin? ***r*** = _____

b) Find the values: sin(θ) = csc(θ) =

cos(θ) = sec(θ) =

tan(θ) = cot(θ) =

15. (4 pts) Suppose θ = 120°.

a) Let θ' be the reference angle for θ. What is the degree measure of θ' ?

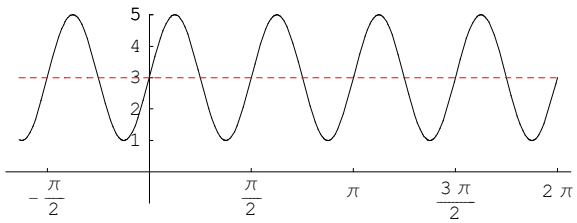
b) **Without using a calculator**, find the exact value of cos(120°). Do not use a decimal as your answer.

c) Give the measure of angle which is positive and coterminal with 120°.

d) Give the measure of angle which is negative and coterminal with 120°.

● Questions 16 and 17 refer to functions of the form $y = a\sin(b\,x) + d$ --OR-- $y = a\cos(b\,x) + d$

16. (4 pts) Find the formula for the function graphed below: $f(x)$ = ____ ____ __



17. (4 pts) A sinusoidal function has a maximum value of 10 and a minimum value of 6. It takes 18 hours for the function to complete cycle and $f(9) = 10$. Find the formula for the function: $f(x)$ = ____ ____ __