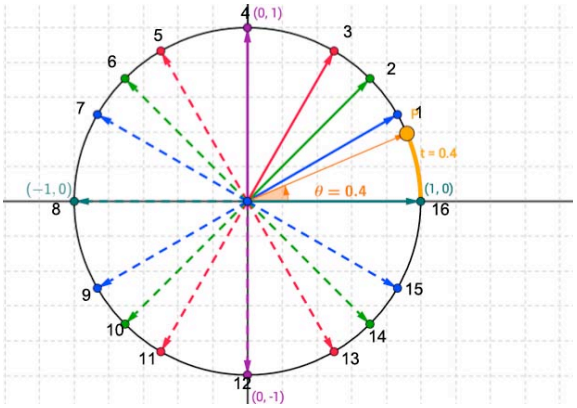
SAMPLE TEST

NOTE: Sample tests are not meant to be a complete study guide. This is just a test that was given on this material one time. Yours will be similar in length and difficulty but will not be exactly the same. There may be topics from the homework that are not covered on this test but WILL be on your test. Working these problems, without referring to notes or solutions should be only ONE PART of your study.

- **Notebook should be turned in <u>before</u> test. It will not be accepted after.**
- **Phones must be turned OFF and put away. Any visible phone (smart watch, headphones, ipad etc.) will result in a grade F .**
- **No scratch paper or notes.**
- **No graphing calculator.**
- **No credit will be given for solutions if work is not shown.**
- **I expect clear and legible presentations .**

(1) Same figure as on homework, see board for colors.

The "blue angles" all have a reference angle of 30 degrees or π/6 radians.
The "green angles" all have a reference angle of 45 degrees or π/4 radians.
The "red angles" all have a reference angle of 60 degrees or π/3 radians.
(ignore the orange here) (12 points)



Write the corresponding number for each of the following angles:

150°_____ 7π/6_____ 210°_____

7π/4 _____ 330°_____ 11π/6_____

4π/3 _____ 3π/2_____ -π/3_____

-330°_____ 2π/3 _____ 5π _____

What are the coordinates of the points at: 3 points

1)

2)

3)

(2) Solve using any of the methods discussed in class. (10 points)

$$\begin{cases} 2x - y + z = 4 \\ x + 3y + 2z = -1 \\ 7x \quad + 5z = 11 \end{cases}$$

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(3) Use Cramer's Rule to solve the following system. $\begin{cases} x \quad + 3y + z = 2 \\ x + y + 2z = 1 \\ 2x + 3y + 4z = 3 \end{cases}$ (8 points)

(No credit given for a different method)

(4) Given the following matrices: (a-d, 2 points each; e,f 4 points each)

$$A = \begin{bmatrix} 8 & 3 \\ -1 & -2 \end{bmatrix} \quad B = \begin{bmatrix} 1 & -2 & 0 & 4 \\ 3 & 1 & -3 & 2 \\ 0 & 5 & 1 & -1 \\ 0 & 2 & 1 & 1 \end{bmatrix} \quad C = \begin{bmatrix} 9 & 3 \\ -4 & 1 \end{bmatrix} \quad D = \begin{bmatrix} -1 & 7 & -1 \\ 3 & -2 & 1 \end{bmatrix}$$

Find the following, if possible. (If not possible, say so.)

(a) A + C

(b) AC

(c) BC

(d) det(C)

(e) AD

(f) det (B)

(5) Given $A = \begin{bmatrix} 0 & -1 & \frac{1}{2} \\ 3 & -4 & 3 \\ 1 & -2 & 3 \end{bmatrix}$

(a) Find A^{-1} (10 points)

(b) Solve the system of equations by writing it as a matrix equation Ax=B and using the inverse of the coefficient matrix (which you found in part a).

$$\begin{cases} -y + \frac{1}{2}z = 7 \\ 3x - 4y + 3z = 1 \\ x - 2y + 3z = 2 \end{cases}$$

(3 points)

(6) (a) Convert from DMS (degree, minute seconds)to decimal degrees, show work. $19^\circ 45' 72''$ (8 points)

(b) Convert from decimal degrees to DMS , show work. 42.6°

(c) Convert from radians to degrees: $\frac{7\pi}{9}$

(d) Convert from degrees to radians, exactly (no calculator): 12°

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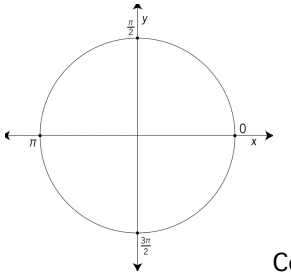
(7) Graph the angle $\theta = 7\pi/12$ in standard position. Give two coterminal angles, one of which is positive and the other negative. Find the reference angle. (8 points)



Coterminal positve _____ Coterminal negative _____ Ref angle_____

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(8) (For each of the following acute angles, find 4 angles, one in each quadrant, having the given angle as a reference angle. Answer in the units given, exactly. (12 points)

	Q1	Q2	Q3	Q4
23^o				
$2\pi/5$				
0.2				

(7) Use matrix methods (Gaussian elimination or Gauss Jordan) to solve: (10 points)

$$\begin{cases} -x-2y-z=-3 \\ 2x+y+z=16 \\ x+y+2z=9 \end{cases}$$

You must obtain row echelon form or reduced row echelon form. Be sure to label operations performed at each step.