Math 1470 – Fall 2007 Name_____

Final Review – 3 of 3

For full credit circle answers and **show all your work**. Each problem is worth four points.

1) Solve the triangle:

A = a =

B = 40^o b =

C = 70^o c = 20 in

2) Solve the triangle:

A = 60^o a = 125 m

B = b = 80 m

C = c =

3) Solve the triangle:

A = a = 7 mi

B = b = 12 mi

C = c = 15 mi

4) Find the area using Heron's formula:

a = 5 ft

b = 7 ft

c = 10 ft

5) Explain why the Law of Cosines always give a correct solution while the Law of Sines only sometimes gives a correct solution.

6) Find a unit vector in the direction of: <-3,4>.

7) Find the component form of the vector with initial point (-1,5) and terminal point (15,12).

Let $\boldsymbol{u}$ = <3 , 4> and $\boldsymbol{v}$ = <12 , -5> for 8-10.

8) Find $u \bullet v$ =

9) Find the angle between $\boldsymbol{u}$ and $\boldsymbol{v}$.

10) Find $proj_v u$ =

11) Find a unit vector in the direction of: <-12,13>.

12) Find the component form of the vector with initial point (15,12) and terminal point (-1,5).

Let $\boldsymbol{u}$ = <-3 , 4> and $\boldsymbol{v}$ = <6 , 8> for 13 - 15.

13) Find $u \bullet v =$

14) Find the angle between $\boldsymbol{u}$ and $\boldsymbol{v}$.

15) Find $proj_v u =$

16) Solve the system of equations algebraically:

$3x + 2y = 10$

$2x + 5y = 3$

17) Solve the system of equations: algebraically:

$-7x + 6y = -4$

$14x - 12y = 8$

18) Solve the system of equations: algebraically:

$x + y = 4$

$x^2 + y^2 - 4x = 0$

19) Solve the system of equations: algebraically:

$x - 2y + 3z = 5$

$-x + 3y - 5z = 4$

$2x + 0y - 3z = 0$

20) Find the equation of a parabola that includes the points: (2, 0), (4, 0), and (6, 8).

21) Determine the order of the matrix:

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

22) Write the matrix corresponding to the system of equations: $2x + y - z + 2w = -6$, $3x + 4y + w = 1$

$x + 5y + 2z + 6w = -3$, $5x + 2y - z - w = 3$.

23) Solve the system of equations in #2 using the matrix capabilities of your calculator. Write the matrix AND give the four solutions.

Matrix:

$x =$ $y =$

$z =$ $w =$

Let $A = \begin{bmatrix} 2 & 1 & -1 & 0 \\ 1 & -3 & -1 & 2 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ -1 & 2 \\ -2 & -1 \end{bmatrix}$.

24) Find AB.

25) Find BA.