**Pre Calc BC CONICS -- Review**

1. Given the parabola with equation 4x + y2 = 0.



* 1. Find the coordinates of the focus and the equation of the directrix. Then make a nice sketch.
  2. Use the general substitution:  and to get the equation for a *general* rotation of  of the above parabola. (ie. replace *x* and *y* in the original equation with *x’* and *y’*. Then simplify).
  3. Find the specific equation of the parabola for each value of below (ie. plug in the indicated value for  and simplify).

(1) 90°

(2) 45°

(3) 30°

1. A hyperbola, centered at the origin, has a focus at (6, 0) and contains the point (14, 15). MAKE A SKETCH!
   1. Find the second focus.
   2. Calculate the difference of the focal radii.
   3. Find the eccentricity of the hyperbola.
   4. Find the equations of the asymptotes.
   5. Write the equation of the hyperbola
   6. Suppose the *x2* and *y2* terms are exchanged in your equation above (and their respective denominators as well). Revise your answers to parts b, c and d.
2. Given the conic: 



a) Identify

b) Determine angle of rotation

c) Find the intercepts and make a sketch. Then check on geogebra.

1. There is a unique conic passing through the five points A(-2, 1), B(-1, 3),

C(2, 2), D(4, 3) and E(2, -1).

* 1. Use matrices to find the equation. (*Make your 5 x 1 matrix = a column of 25’s to make life easier).*
  2. Identify the conic.
  3. Determine the angle of rotation.
  4. Verify on geogebra (there is a 5-pt conic tool in the conic menu).

1. Given the conic described by .
   1. Describe and the conic (indicate type, attributes and eccentricity).



* 1. Sketch.
  2. Write an equation in *rectangular* form for this conic.
  3. Write an equation in polar form for the ellipse with focus at the origin and vertices at (-3, 0) and (5, 0).

1. **Circle the correct answer.** A double cone is intersected by a plane parallel to the axis of the cone. The resulting intersection is a conic whose eccentricity is:

a) 0 b) between 0 and 1 c) less than zero

d) 1 e) greater than 1 f) unknowable