University of Guyana
Faculty of Technology

EMT 121 - Problem Set VIII

April 1, 2011

1. The endpoints of the major and minor axes of an ellipse are (1,1), (3,4),(1,7) and (-1,4). Sketch the ellipse, give its equation, and find its foci.

2. Find the center , vertices, and foci of the ellipse

$$25x^2 + 9y^2 - 100x + 54y - 44 = 0$$

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3. Sketch each of the following ellipses:

   (a) $4x^2 + 9y^2 = 144$

   (b) $\frac{(x-1)^2}{16} + \frac{(y+2)^2}{4} = 1$

   (c) $4x^2 + y^2 = 1$

4. For an ellipse the ratio $e = \frac{c}{a}$ is called the eccentricity of the ellipse. The orbit of Halley's Comet is about 9.12 AU wide and 36.18 AU long. Find its eccentricity. (1 AU= 1 Astronomical Unit = 92,600,000 miles)

5. A circle has radius 3 and center (-1,2). Find its equation.

6. Find the center and radius of the circle $x^2 + y^2 + 4x - 6y = 12$.

7. The center of a circle is (2,2). The circle goes through the point (4,5). Find its equation.

8. Find the circle through the points (1,0),(0,1) and (2,2).