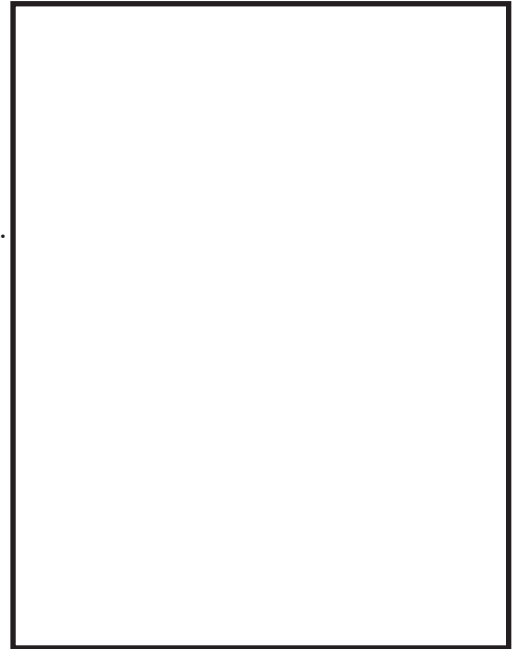


IAT -- Intermediate Algebra & Trig -- Quest #4 -- Chapter 9 -- 85 points

As usual, **show all your work**. Graph carefully AND neatly. Failure to do so may result in loss of score.

- 1) For ten points, draw the proper conic diagram in the box at right and show how we get the four conic sections besides points and lines from it. Label them.
- 2) Show how we derived the distance formula. Use as your points (x, y) and (h, k) and call the distance between them r . Five points.



- 3) For one point apiece, merely identify which conic section each of these equations corresponds to. Write C for circle, E for ellipse, H for hyperbola, P for parabola, or N for none of these.

___ a) $3x^2 - 7x + 7y^2 + 3y - 9 = 0$

___ b) $12x - 4y^2 + 16y = 20$

___ c) $4x^2 + 12y - 27 = 4y^2 + 18x$

___ d) $y = \frac{3}{4}x - 8$

___ e) $(y - 2.6)^2 + x^2 = 9$

For five points each, put each of these conic sections in standard form:

4) $y^2 + 14x - 12y + x^2 = 15$

5) $9x^2 + 4y^2 - 18x + 24y + 9 = 0$

Short Answer/Fill-in. Be clear and complete in your answers. Three points each.

- 6) A hyperbola is defined as the locus _____
_____.
- 7) A parabola is the locus of all points whose distances from a given point, called the _____, and a line, called the _____, is a constant.
- 8) The midpoint of the segment joining the points (-17, 4) and (11, - 2) is _____.
- 9) The distance between the points (-9, 23) and (-3, 31) is _____.
(Show work for credit)
- 10) The point (4, 3) lies on a circle whose center is the origin. The equation in standard form of that circle is: _____

Calculations and Graphing. Show your work. Five points each.

11) The graph of an ellipse is given by: $\frac{x^2}{16} + \frac{y^2}{4} = 4$

- a) Identify the x-intercepts. b) Identify the y-intercepts. c) Identify the foci.

- 12) Write the formula for a parabola, open concave right, whose vertex is on the origin and whose focus is at the point (1/8, 0).

- 13) The vertices of a triangle are (-1, 3),
(5, 2) and (3, 6). Is the triangle

scalene equilateral

isosceles congruent

(circle one)

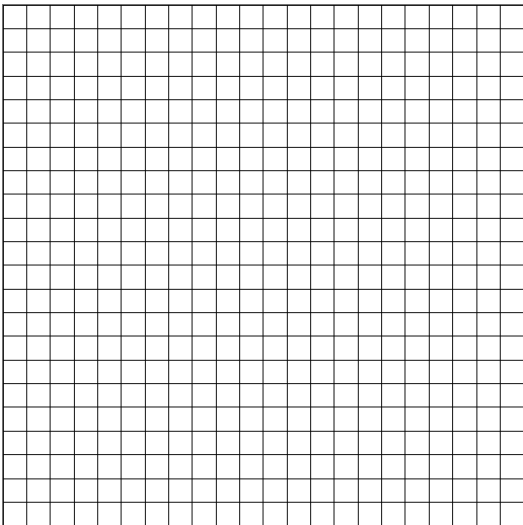
14) Write the equation of a circle whose center is at (14, -13) and has a radius of 5.

15) Write an equation of the hyperbola whose asymptotes are $y = \frac{2}{3}x$ and $y = -\frac{2}{3}x$ and has vertices at (4, 0) and (-4, 0).

16) Write the equation of an ellipse whose center is at the origin, has a semi-minor axis of 5 and foci at (0, 12) and (0, -12).

Graph each equation below neatly and carefully. Label the values on your axes. PENCIL only.

17) $13x^2 + 325y^2 = 325$



18) $(x + 3)^2 + (y - 3)^2 = 4$

